REPORT
OF THE
PRINCIPAL
OF
QUEEN'S UNIVERSITY
TO THE
BOARD OF TRUSTEES

1960-1

QUEEN'S UNIVERSITY, KINGSTON, ONTARIO

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The Principal's Report

To the Board of Trustees of Queen's University at Kingston

Ladies and Gentlemen:

I have the honour to report on the affairs of the University for the session 1960-1, the last session on which I shall report as Principal.

During this session, death has ended the association with the University of a number who, over many years, have played important parts in University affairs.

Professor P. G. C. Campbell, Emeritus Professor of French, died on 13 November 1960. He was appointed in 1902 and retired in 1948. He was the last of the bright galaxy of professors brought to Queen's by Grant and active in the early years of the century. He shared with Watson and Cappon the distinction of having studied under Edward Caird. Distinctive in personality and with a lively mind, no professor remains more vividly in the memories of his students than P. G. C. Campbell.

Professor R. L. Dorrance, a graduate of the University of Toronto who had been appointed to the Chemistry Department in 1920, died tragically in a motor accident on 22 June 1961. He had reached the age of retirement but because of his special quality as a teacher and his knowledge of the administration of the department, his term was being extended by annual appointment. To assist the new Head of the Chemistry Department, he had just been made Vice-Chairman. Still active after forty-one years of service, he will be keenly missed as a colleague and a friend.

Miss May Chown, who for many years served in the Treasurer's Office, and who for a long and important period had been the watchful and resourceful Treasurer of the Ban Righ Board, died on 16 January 1961. Daughter of the late G. Y. Chown, she was born into the Queen's tradition and drew admiration for her devotion and affection for her charming friendliness to many generations of Queen's men and women.

Mr Charles Hicks, who had served for many years as Secretary of the Athletic Board of Control and who had retired only a few years ago, died on 9 February 1961. Charlie Hicks came to the

University shortly after World War I and became an institution in himself. Always industrious, sometimes explosive, his singular loyalty was apparent to all.

Mr M. J. AYKROYD, B.Sc. (1913), a director of the General Alumni Association and a member of the University Council, died early in August of this year. Spending much of his career in the engineering service of the Bell Telephone Company, he maintained continuing interest in the welfare of the University and was a regular attendant at Council meetings.

The Board of Trustees

At the meeting of the Board of Trustees on 18 and 19 May 1961, Mr E. C. GILL was re-elected Chairman, and Mr R. D. HARKNESS and Mr M. N. HAY were elected Vice-Chairmen. Mr HARKNESS was also elected to be Chairman of the Executive Committee, relieving the Chairman of the Board of some of his responsibilities.

The Board re-elected Mr DONALD GORDON, Mr D. I. McLEOD and Mr NORMAN McLEOD for new terms. Mr J. R. GORDON was elected by the Board of Trustees in October 1960 to complete the unexpired term of Mr STIRLING and was re-elected for a further term in May.

The Reverend Dr G. A. BROWN was re-appointed by the Theological College for the coming session. Mr A. E. MACRAE and Mr W. L. McDONALD were re-elected by the benefactors. The Honourable R. O. CAMPNEY and JAMES A. RICHARDSON were re-elected by the University Council and Dr WALLACE TROUP and Mr D. D. FINDLAY were re-elected by the graduates.

ARTHUR L. DAVIES was elected a member of the Executive Committee and the other members were re-elected.

The University Council

Four new members were elected to Council during the year. Mr J. M. COURTRIGHT, B.Sc. (1941), of Westmount, Quebec, Mr R. D. ARMSTRONG, B.Com. (1937), of Windsor, Ontario, Mr H. F. GIBSON, B.A. (1937), B.Com. (1938), of Kingston, Ontario, and Mr I. M. ROGERS, B.A. (1946), of Willowdale, Ontario. Five members were re-elected for a further term: Mr R. H. BISSELL of Hamilton, the Reverend N. BURKE, Vancouver, Mr J. L. MURRAY, Kingston, Mr N. R. TISDALE, Pittsburgh, and Miss MARY WHITE, Toronto.

Changes in Academic Staff

There are at the close of this session two retirements from the professorial staff and one from the Library staff.

Professor G. B. FROST has retired as Professor and Head of the Department of Chemistry after thirty-seven years' service. Professor FROST, a distinguished physical chemist, has been Head of the department since the retirement of Professor McRAE in 1956. He has been devoted in his work as a teacher and particularly resourceful and painstaking in the planning of two additional wings to Gordon Hall.

Professor JOHN WYLLIE, Professor and Head of the Department of Public Health and Preventive Medicine since 1930, also retires from his position but is going to continue teaching part time at the request of the University. Meticulous in his standards and highly effective as a teacher, Dr WYLLIE will leave a notable tradition in his department.

Miss JESSIE DYDE has been Head of the Cataloguing Department in the Douglas Library since 1945. Her care and skill have contributed greatly to the usefulness of the Library and her experience and competence in her field have been widely recognized among Canadian librarians.

The chief appointment of the year and the one of greatest promise for the University is, of course, the appointment in April of Dr J. A. CORRY, Hardy Professor of Political Science and Vice-Principal, to be Principal of the University from 1 September 1961. It is sufficient for me to say that his appointment is notable in its promise for the University and in the enthusiasm with which it has been greeted by his colleagues, by the graduates of the University and by the students.

During the year Dr J. M. R. BEVERIDGE, Craine Professor of Biochemistry, was appointed Chairman of the Board of Graduate Studies in succession to Professor JEFFERY.

More recently, Dr R. L. McINTOSH, Professor of Physical Chemistry at the University of Toronto, has been appointed Professor and Head of the Department of Chemistry in succession to Dr FROST.

Mr D. S. SWAIN, Director of Development at Carleton University, was appointed in January Director of Public Relations. This office had been vacant since the resignation of Mr J. A. EDMISON. The new Director will be concerned only with public relations and not directly with endowment. Mr D. G. DEWAR will be associated with Mr SWAIN in his work but will continue as Director of Publicity.

Other appointments and resignations are listed elsewhere in this report.

Convocations and Special Functions

The annual reunion week-end was held 7 - 9 October and special tribute was paid to the graduation classes of 1910.

On 20 October at Autumn Convocation, JOHN BERTRAM STIRLING, B.A. (1909), B.Sc. (1911), LL.D. (1951), was installed as Chancellor of the University. The honorary degree of Doctor of Laws was conferred on the Right Honourable JOHN DIEFENBAKER, Prime Minister of Canada, the Honourable Mr Justice D. C. ABBOTT, Chancellor of Bishop's University, Mr JAMES F. MACLAREN, Consulting Engineer, Toronto, Mr R. E. POWELL, Chancellor of McGill University, and the honorary degree of Doctor of Science was conferred on Dr C. S. BEALS, Dominion Astronomer.

The Prime Minister gave the Convocation address and following Convocation proceeded in the academic procession to Sir John A. Macdonald Hall which he opened officially. He also unveiled a portrait of the late Honourable W. F. NICKLE, former Chairman of the Board of Trustees of the University whose library, the gift of his family, is a valuable and distinguished part of the Law Library. Later in October a portrait of Dr J. A. CORRY, the gift of the Law students, was unveiled. Dr CORRY was Acting Dean of the Faculty of Law during its first year.

On 12 March, the Baccalaureate Service was held in Grant Hall and the sermon was preached by the Reverend Canon MICHAEL CREAL.

On 20 May, the Spring Convocation for conferring degrees in Applied Science, and in Arts and Science, Theology, Commerce, and Physical and Health Education were held. In the morning, 229 degrees in Engineering by examination were conferred. Honorary degrees of Doctor of Science were conferred by the Chancellor on Dr LEO MARION, graduate of Queen's who is Director of the Division of Pure Chemistry at the National Research Council, Ottawa, and on Mr H. R. SILLS, also a graduate who is Design Engineer with the Canadian General Electric Company in Peterborough. Professor D. M. JEMMETT, Emeritus Professor of Electrical Engineering at Queen's University, received the degree of Doctor of Laws. Dr MARION addressed Convocation.

In the afternoon, degrees in course were conferred on 462 students. The honorary degrees of Doctor of Laws were conferred on Mr LIVINGSTON MERCHANT, United States Ambassador to Canada, Dr NORMAN MILLER, retiring Professor of Mathematics at Queen's University; Colonel W. R. SAWYER, Vice-Commandant and Director of Studies at the Royal Military College, Kingston; and Mr T. C. WHITE, Director of Education in Windsor. The Reverend DAN D. GAYNOR of Wall Street United Church, Brockville, and the Reverend NORMAN RAWSON, Minister of St James United Church in Montreal, received the honorary degrees of Doctor of Divinity. Mr MERCHANT spoke on behalf of the honorary graduates.

The Convocation for conferring degrees in Medicine, Law and Nursing Science was held 27 May, the Chancellor conferring 50 degrees in Medicine, 17 in Law and 29 in Nursing Science. Diplomas were presented to 9 students in Nursing. The degrees of Doctor of Laws, *honoris causa,* were conferred on Dr HARRISON L. MCLAUGHLIN, Professor of Clinical Orthopaedic Surgery at Columbia University, New York, and a graduate in Medicine of Queen's University; and on Dr HORACE E. READ, Dean of the Faculty of Law at Dalhousie University, Halifax. Dr MCLAUGHLIN delivered the Convocation address.

Special Lectures and Other Functions

An event of more than ordinary interest and significance was the Conference on Nuclear Structure held at the end of August 1960 at Queen's University and attended by some four hundred nuclear physicists from all parts of the world. The many expressions of satisfaction with the accommodation made available and with the arrangements for the Conference reflect great credit on Dr B. W. SARGENT and his associates who made the local arrangements.

At the Annual Conference of the Theological Alumni Association held in October, the Chancellor's Lectures were given by Dr H. B. MCNEEL, Chief of the Mental Health Division of the Department of Health, Ontario.

The new Observatory on Ellis Hall was officially opened on 25 November by Dr C. S. BEALS, Dominion Astronomer. The ceremony was followed by a lecture in Ellis Hall Auditorium by Dr THOMAS GOLD, world-famous cosmologist now at Cornell University. After the lecture, the Observatory was open for general inspection.

The annual series of Public Lectures was given in November and December and was directed to *The World Population Explosion.* Professor NATHAN KEYFITZ of the Department of Economics and

Political Science, University of Toronto, spoke on 'An Invasion from Earth'. Professor D. R. CAMPBELL of the Department of Agricultural Economics at the Ontario Agricultural College, Guelph, gave a lecture on 'How Will They Be Fed?'. Professor JOHN MEISEL of the Department of Political and Economic Science, Queen's University, discussed 'The Impact on Society'. The final lecture on 'International Repercussions' was given by Mr JOHN HOLMES, President of the Canadian Institute of International Affairs, Toronto.

The Chancellor Dunning Trust Lectures were given in January and early February by Mr PIERRE EMMANUEL, poet, critic and journalist of Paris, France. The general title was *A Creative Way to Freedom* and the three lectures in the series were 'The Writer and Social Changes in the World Today', 'A Quest for Inner Freedom' and 'Freedom and Spiritual Unity'. Mr EMMANUEL, a poet of unusually varied experience, talked to a large number of groups and individuals and aroused the liveliest interest and discussion.

And Finally

On 31 August, I complete a term of ten years as Principal of the University and the duties of the office pass to my successor. Though I shall continue for a time as Vice-Chancellor, and I hope usefully, the planning and direction of the University will be in other hands. It is therefore appropriate that I should report here on the decade of my stewardship.

Though my term of office has been brief, it has covered the most active decade in the history of Canadian universities. Problems and opportunities have been many. Change and development have been rapid. In the world at large, the decade opened with the outbreak of the Korean War. The rapid Soviet acquisition of atomic and thermo-nuclear bombs and the startling emergence of ballistic missiles and space vehicles alerted the Western countries to the dangerous lag in scientific and technological education and research.

In the same period, we became sharply aware of the effects of the continuing high postwar birth rate and widened economic opportunities. It was realized that, in common with other countries, we would face swelling university enrolments culminating in very rapid increases throughout the decade of the sixties.

The decade began, however, with a decline in the number of university students in Canada, accentuated by the graduation of ex-service men. Canadian university enrolments reached their postwar low in the session 1952-3 though at Queen's University the lowest enrolment was in the session 1951-2.

In the earlier part of the decade, there was a very strong trend toward Engineering but about 1957 the emphasis shifted sharply to Science, Arts and Graduate Studies. The decline in the demand for engineers coincided with the opening of many more engineering schools.

Though resources and progress were painfully limited initially, public awareness to the imminent crisis brought new national, provincial and private assistance to the universities. Following the report of the Massey Commission, the Canadian government instituted grants to universities based on an annual sum of 50 cents per head of population which was raised to $1.00 in 1956 and to $1.50 in 1958. (A submission is now before the government asking that it be increased to $2.50). The government of Ontario increased its grants by irregular steps and in the case of Queen's University from $550,000 in 1951-2 to $1,475,000 for the coming fiscal year. In addition to these maintenance grants, the Ontario government began in 1953 annual capital grants to the universities beginning with $400,000 to Queen's and increasing to the present grant of $1,200,000. In 1957, the Canada Council was set up and entrusted, as part of its duties, with the distribution of $50,000,000 for university building construction for the arts, humanities and social sciences. From this source, our own allotment has been just short of $2,000,000 of which 90 per cent has been used.

Throughout the same period, many universities endeavoured by means of financial campaigns and the annual giving of graduates to enlarge the means of meeting increased enrolments, higher income levels and the greatly enlarged demands of professional and scientific education. Queen's University was fortunate that under the highly effective leadership of Mr N. R. CRUMP, a fund of slightly more than $4,000,000 was raised in 1956-7. Through the Alumni Fund, graduates have contributed increasingly important amounts, which have been used for capital and special projects and not taken into the operating budget.

It would be a mistake to think that these funds were required simply for the purpose of expansion. All Canadian universities had gone through ten years of depression, five years of war and about five years of frantic improvising to meet the emergency needs of the ex-service students. There was not a university in the country in 1951 which did not face need for expenditures that should have been made ten or fifteen years earlier. No university had an adequately stocked library. None had adequate laboratories in all the basic sciences or in engineering. The physical provision for medical education was antiquated and the time, staff and facilities for university research were unbelievably meagre. Residence accommodation was woefully insufficient. There was, therefore, much ground to be recaptured before a genuine advance could begin.

It is against this background that we must view the changes at Queen's University.

Students

The session 1951-2 was the postwar low point in student enrolment at Queen's. The ex-service students had completed their courses and the eighteen-year olds of that year had been born in 1933 when depression, bank holidays and drought had dried up the resources of the present and the hopes for the future. The number of students was small, 2,119, of whom 2.093 were full-time degree students eligible for the federal grants established in that year. Over the intervening decade, numbers rose by nearly 50 per cent to 3,109 students of whom 3,030 were full-time degree students as defined for the federal grant. The increase in enrolment at all Ontario universities was 58 per cent.

It was not to be expected that Queen's University would increase its enrolment as much as some other universities. Nearly 90 per cent of our students must live away from home. Engineering and Medicine, which accounted for nearly 40 per cent of our students, are now served by many additional schools and have had a lower rate of growth.

Nevertheless, we went far toward taking our full share of the total increase of students in the intervening years. In 1951-2 we had 3.3 per cent of the students in all the universities receiving the federal grant in Canada, and 11.5 per cent of the students in Ontario. In 1960-1 we had 2.8 per cent of the total students in Canada and 10.6 per cent of the total in Ontario. Had we maintained the same percentage of Ontario students as we had a decade ago, we should have had about two hundred more students. Had we maintained the same percentage of the *national* total, we would have had about four hundred more students. (This greater relative decline in the national percentage reflects the great expansion of student populations in the four western provinces, in most of which entrance to the university is earlier than in Ontario). Since we could readily take into the Faculty of Applied Science another 200 to 300 students, it is evident that we have made provision up until now for our full share of the increase and have not left the responsibility to others.

Enrolment in the Faculty of Medicine has been necessarily static. While the first half of the decade saw a very rapid increase in the Faculty of Applied Science to the point where it became necessary to limit the first year to about three hundred, the latter part of the period brought a decline in Engineering enrolments. There has been a great expansion in the Faculty of Arts and Science and in Graduate studies. Excluding Medicine and Engineering, the increase in enrolment has been over 70 per cent. The increase in the number of women students has been more than 80 per cent. The number of graduate students, which was only seventy-five in 1951-2, has increased to nearly three times that number. Other significant increases have come from the establishment of the Faculty of Law and the Graduate Course in Business Administration.

Not only has the number of our students increased but there is reason to believe that there has been an improvement in the quality and in the number of advanced students. While the general increase has been about 50 per cent, the numbers of our honours students in Arts and Science have more than doubled.

The number of our students winning scholarships awarded outside the University in relation to our share of the total student population is this year highly favourable. Though Queen's students made up only 2.8 per cent of the students in all Canadian universities, they received 9.4 per cent of the Woodrow Wilson Fellowship awards and 11.5 per cent of the honourable mentions. They gained 7.8 per cent of the National Research Council awards for the whole of Canada. Being only 10.6 per cent of the total number of students in Ontario universities, they won 17 per cent of the Woodrow Wilson Awards and 22 per cent of the honourable mentions. They received 25.6 per cent of the National Research Council Awards won by students of Ontario universities. These figures for National Research Council awards are exceeded only by those of much larger institutions, the University of British Columbia and the University of Toronto.

Generally speaking, there have not been great changes in the origins of our students. About the same proportion as formerly come from the Province of Ontario. We draw somewhat less from the western provinces and more from Quebec. Students from outside of Canada have about doubled in the decade, more than half of them coming from Commonwealth countries. Within Ontario, relatively greater numbers of our students come from Toronto, Ottawa and northern Ontario than formerly and fewer from western Ontario. We still maintain a fairly good distribution of students with increases being especially marked in the numbers from the growing metropolitan areas.

Additional Departments

We have been cautious about adding new departments and schools to the University and have assessed proposals very carefully to determine whether they were suited to our resources and likely to contribute to the quality of the University. Our main addition was the establishment in 1957 of the Faculty of Law which has abundantly justified itself. The increase in enrolment of students in this Faculty has been slow but, with the sound standards established by the Dean and the members of his staff and with two classes graduated, there are now signs of a rapid increase. A new graduate course for the M.B.A. degree in the School of Business has made a promising start. In Medicine we have added Departments of Opthalmology and Anaesthesia with very satisfactory results, and have increased substantially the full-time clinical staff. In the Faculty of Arts and Science, a Department of Geography has been set up and the first steps have been taken toward establishing a Department of Russian, for both of which there is a good future. Graduate studies have been carried on at the University for many years, but the rapid expansion in the past decade has constituted a new era. While the majority of the students are candidates for Masters' degrees, in 1960-1 fifty were enrolled as candidates for the Ph.D. There is little doubt that the number of graduate students will increase to the full limit to which we can provide adequate instruction and direction.

Academic Staff

Statistics tell little about the effectiveness of teaching and the soundness of scholarship, but it is of some significance that at the beginning of the decade we had 122 full-time members of staff and in the past year we have had 226. The number of students per full-time instructor has fallen from 17.3 to 13.4 despite a large increase in the student body.

It has been possible to effect during the decade a better balance in the various ranks. At the beginning, 46 per cent of the academic staff had the rank of Professor and only 30 per cent were Assistant Professors or Lecturers. Currently, only 34 per cent of the staff are of Professor's rank and 49 per cent are Assistant Professors or Lecturers. This represents a much better balance in the teaching force.

With great difficulty, and by uneven steps, academic salaries have been increased in this period by about 100 per cent. They are now fully competitive with other Canadian universities though not with many United States institutions. This achievement has been immensely important in obtaining able recruits.

I have pride in the academic appointments which have been made in this period and am satisfied that, though there is ample room and need for further improvement, the academic staff, in teaching talent and enthusiasm and in scholarly and scientific distinction is as a whole superior to that of any preceding generation. This is a generalization which need not disturb any one's cherished memories of notable scholars and teachers of the past.

Research

In no area has there been more growth in the past decade than in research and scholarly work. The pattern of the great majority of the academic staff being not only teachers but active scientists and scholars has been firmly established. This, of course, is not a development peculiar to Queen's University. It is part of the era in which we live. We have not, however, drifted with the tide but have made concerted efforts to take advantage of it and steer a course suited to our needs.

The expansion in research dates from a capital grant from the Province of Ontario in 1946 which my predecessor, Dr WALLACE, wisely decided to devote to the promotion of research and scholarly work. This greatly aided the work of the Committee on Scientific Research which had already been established by the Board of Trustees and led to the formation of the Arts Research Committee, both of which shared in the funds available. About the same time, the National Research Council and the Ontario Research Council and Foundation made available steadily increasing grants, as did a growing number of foundations and departments of government.

In 1951, Mr R. S. MCLAUGHLIN generously set up a Trust Fund of $1,000,000, the income from which comes to the University, on application, for the encouragement of research and scholarly work. These funds have been used to provide graduate fellowships, to support research chairs, to provide research assistants and afford the Arts and Science Research Committees the means of carrying on their work. The establishment of this Trust Fund has been perhaps the most decisive influence in directing and assisting efforts toward improving and extending research and graduate study.

Stimulus has been given to the work of younger members of staff through the provision for Summer Research Associateships with a modest stipend. Those for scholars in Arts subjects have been provided in the University budget and for those in the Sciences from a general National Research Council grant given to the Principal.

In the first year of the decade, the research grants received by the University and its staff amounted to $224,000. During the past year, these grants from governments, foundations, corporations and individuals have exceeded $1,200,000.

While research and scholarly work have been supported by grants, the provision of space, services and the senior staff, to mention only larger items, falls on the University budget, a fact of no little importance.

Buildings

The decade has been crowded with construction projects from which every division of the University has benefited either by acquiring new space or inheriting space vacated by other uses. Twelve limestone buildings have been added to the eighteen then standing and four additions are under construction. The only University buildings which have been demolished are the two historic wooden buildings, the Mining Mill and the Mechanical Laboratory, which had served well their day and generation.

A major objective has been the provision of greatly increased residence accommodation. This is an essential need not merely because of the increase in student numbers but because growth and change in the City of Kingston have reduced available student accommodation and, even more important, because there are special educational and social values in students sharing to the fullest extent in university residential life.

At the beginning of the decade, Ban Righ Hall and its annexes provided accommodation for about 200 women. There was no residence accommodation for men. At present, with the addition of Adelaide Hall and Chown Hall and the continuation of a number of annexes, we have residence space for about 450 women and ample provision for meals for many more. The erection of McNeill House, Morris Hall and Leonard Hall on the Leonard Field have provided rooms and meals for 600 men. As resources become available, a fourth men's residence must be undertaken and doubtless in the future, more accommodation for women will be needed.

The Faculty of Arts and Science has gained additional space through the erection of Dunning Hall and the transfer of Carruthers Hall to Mathematics. The Faculty of Applied Science has gained through the erection of Ellis Hall for Civil Engineering and the conversion of the Old Gymnasium into a building for the Maintenance Department and Engineering Drawing. Additional space has been afforded to Geology, Mining and Metallurgy, Biology and Electrical Engineering. A large new extension is under way for

Chemistry. Physics has had comparatively little increase in space but plans are proceeding for a new building and one for Biology is in contemplation.

The Faculty of Medicine has gained from the erection of the Physiology Building and of Etherington Hall for the clinical subjects, as well as by extensive renovation and rearrangement of both the Old and New Medical Buildings.

The new Faculty of Law is handsomely provided with well-planned space for years to come in Sir John A. Macdonald Hall.

The University Library greatly improved its facilities when the administration moved its offices to Richardson Hall, but we are already confronted with an urgent need for still more library space.

Though it is not a new building, the bequest of the late Mrs ETHERINGTON of her house as accommodation for the Agnes Etherington Art Centre has tremendously improved the provision for art and has had a marked influence on students and the community.

Finance

At the beginning of the decade, the University's current expenditures were less than $1,500,000 and there was a substantial surplus in the University budget. In the budget now coming into operation, expenditures will amount to more than $5,600,000 and there will be only a nominal surplus. If one were to include research expenditures and the expenditures of such ancillary enterprises as the residences and the Union, the total annual expenditures would not be far short of $8,000,000. Throughout the period, despite periodic stresses, the budget has been closely controlled and expenditures have not been allowed to expand beyond the revenues available to meet them. We have latterly, however, tried to avoid both surpluses and deficits and exclude all capital expenditures from the current budget.

In substantial part, of course, this rise in expenditures reflects not expanded work but merely increased costs and particularly salaries and wage rates. In part, it reflects inclusion in the budget of expenditures which were previously charged to special grants and funds outside the budget but in large part, it represents an increase in the educational work of the University. The figures can be alternatively stated as an increase in cost per student per year from about $700 to more than $1500.

During this period in which total expenditures have increased by about three and a half times, the outlays for academic salaries and supplies have multiplied by more than four times. Our library expenditures have increased by three and a half times. Maintenance expenditures, have gone up by more than three and a half times. In contrast, our administrative expenditures, which were about 12 per cent of the budget at the beginning of the decade, are currently about 7 per cent. It is evident here that the increases in expenditures have gone in the right direction and that there has been care exercised in keeping down overhead.

This great increase in expenditures has been met by increases in revenue. Student fees in total (not in rates per student) have increased two and a half times. Government grants, both provincial and federal, have increased nearly five times. Thanks to modest additions to our endowment funds and the careful, effective work of our Investment Committee, income from investments has increased two and a half times. Whereas, however, at the earlier period it covered about 15 per cent of our expenditures, it now barely reaches to 12 per cent.

Administration

It is a great satisfaction that, having reached new dimensions, it has been possible to organize the administration of the University on a more adequate and efficient basis. No substantial change had been made in the University's administrative setup in nearly forty years. As the result of an administrative survey, made at the instigation of the Chairman and the Board of Trustees by Price Waterhouse and Company, radical changes were made in organization. It was clear that the work of the Treasurer's Office had become too great and that too many people were reporting direct to the Principal. Mr TILLOTSON was made Secretary of the University, retaining his position as Secretary of the Board of Trustees, and a part of his former duties. Professor J. J. DEUTSCH of the University of British Columbia was appointed Vice-Principal (Administration) with immediate responsibility for the University budget. Reporting to him are a Financial Supervisor, a Director of Non-Academic Personnel, a Director of Purchasing and the Superintendent of Buildings and Grounds. A transfer has been made to machine accounting and all accounting for ancillary enterprises is being brought into the University accounting office.

While the full results of these changes have not yet been reaped, they have been of the greatest value in enabling the administrative officers to handle the much increased burden of University affairs and in putting adequate and up-to-date information before the Board of Trustees. The appointment of Dr Deutsch has enormously strengthened our administrative corps as it has added greatly to the academic community.

The Emerging Pattern

The past decade has seen substantial achievements in strengthening the University and shaping it to its possibilities and destiny. I am satisfied that each change has within it life and promise. I am satisfied that none of the valued traditions has been lost or degraded.

The decade has been full of challenges and opportunities but the next ten years will be equally crowded and crucial. Though the only certain things in planning are that the unexpected will occur and that "men build other than they intend", yet the pattern of the Queen's University of the future is emerging.

The recommendation of a specific optimum size for the University has been deferred, intentionally. I have been convinced that substantial expansion was necessary and desirable. It was necessary so that we might take a reasonable share of the general increase. It was desirable so that we might still have diversity and national representation in our students and so that we might retain and attract first-rate scholars and scientists to our faculties. The optimum size was not yet definable.

There has now developed a better informed opinion and a considerable consensus. In the light of the location of the University and its traditions, no one would suggest as either practical or desirable that expansion to 6,000, 10,000 or 15,000 should be contemplated. We have, however, room for some further increase in numbers. The Faculties of Medicine, Applied Science and Law and the School of Business can accept more students and still stay within limits already established or contemplated. Continued increase is desirable for a time in Graduate Studies. The Faculty of Arts and Science, still unrestricted, must now frame a policy of selection if congestion is to be avoided and standards preserved. Beyond taking up some of the shortfall in some Faculties and Schools, further increase in numbers from now on will depend largely on the establishment of new professional faculties.

What is emerging is a University limited and selective in its undergraduate enrolment, restricted in its graduate and professional registration to numbers for which first-rate instruction and experience can be offered. There will be fewer students of inferior quality or interest and, I would hope, much reduced wastage. Special efforts will be required to supplement the instruction in the early years and eliminate unnecessary and costly failures. The University must become increasingly residential and residence and union facilities will be urgently needed for graduate students. Research and scholarly work should be extended and teaching duties reduced. Additional teachers, technicians and assistants will be needed to make this extension possible. Some departments still lack adequate or even tolerable space and equipment. There is need for an extension of large scholarships to attract some of the best students from all parts of Canada. The enlargement and enrichment of the library is an urgent and critical need. The quality of a university cannot greatly exceed the quality of its library.

It must be made very clear that such a university will be more costly to operate and maintain. It will cost more per student. Yet it will be possible to find resources for it because it will be able to demonstrate that it is distinctive in its quality and in its service.

I am not trying here to project policies for my successor. I am merely recording what seems to me to be already in the pattern. But the pattern is not the object. The object is excellence, real excellence, not the hallucination of excellence dear to the academic heart. To move persistently toward it will require all the originality, all the wisdom, all the leadership, and all the energy that many successors can muster. I flatter myself that I have closed no doors, left ample room for the evidence that is not yet in, and have considered the University always, not as a structure but as a living, growing thing. I also have no delusions that I leave no deficiencies, failures, unsolved problems, or cobwebs in academic corners.

The University is fortunate in its choice of my successor. Dr CORRY knows the University thoroughly. He has the unqualified confidence of the Board and of his colleagues. He is of high repute as a scholar and a person. His mind cuts through the surface to the fundamentals. He has had the great advantage of a year of refreshment and reflection. I cannot wish more for him than that he should have in his term of office good fortune equal to mine.

I am grateful to the ten generations of students from whom I have had stimulus, encouragement and much consideration and kindness. I have had friendship and willing co-operation from my academic colleagues and I thank them. The administrative officers have been a loyal and able team devoted to the interests of the University. I have been singularly fortunate in the assistance, support and cordial friendship which I have had from members of the Board of Trustees. I doubt if in any previous period has the Board been as united and as effective.

I am especially grateful to the Chancellor, both as Chancellor and as Chairman of the Building Committee, for his helpfulness and generosity. The Rector, Mr BROCKINGTON, is a friend of long standing who has been constantly alert to opportunities to further the interest of the University and of his constituents, the students.

I have had great kindness and help from Honourable J. M. MACDONNELL, the Chairman of the Board when I was appointed. Mr E. C. GILL, the present Chairman, has been a trusted confidant, unfailing in his interest and resourcefulness. To Mr R. D. HARKNESS and Mr NEIL HAY, Vice-Chairmen of the Board, I am grateful for unvarying loyalty and decisive help in many things.

Respectfully submitted,

W. A. MACKINTOSH

Deaths

P. G. C. CAMPBELL, Emeritus Professor of French, on 13 November 1960
Miss MAY CHOWN, for many years in the Treasurer's Office, on 16 January 1961
R L DORRANCE, Professor of Chemistry, on 22 June 1961
J. C. HICKS, former Secretary-Treasurer, Athletic Board of Control, on 9 February 1961

Retirements

Miss JESSIE DYDE, Head of the Cataloguing Division at the Douglas Library
Dr G. B. Frost, Professor of Chemistry and Head of the Department
Dr J. WYLLIE, Professor of Public Health and Preventive Medicine and Head of the Department.

Resignations

D. J. GUNN, Lecturer in Chemical Engineering
W. P. JOLLIE, Lecturer in Anatomy (Histology-Embryology)
J. W. KERR, Lecturer in Geological Sciences
E. C. B. PEDERSON, Lecturer in Physics
H. W. TAYLOR, Assistant Professor of Physics
D. H. WALLER, Assistant Professor of Civil Engineering

Appointments for 1960-1

A. F. BARADI, B.Sc. (Cairo), Ph.D. (London), Visiting Assistant Professor in Anatomy (Histology-Embryology)
J. M. R. BEVERIDGE, B.Sc. (Acadia), Ph.D. (Toronto), M.D. (Western), Chairman of the Board of Graduate Studies from 1 September 1960 for a term of three years
F. J. L. YOUNG, M.A. (St Andrews), M.A. (Queen's), Adviser to Overseas Students

New Appointments for 1960-1

R. CEBALLOS, Medical Studies (Madrid), E.C.F.M.G. (Atlanta), Lecturer in Pathology from 15 November 1960
D. J. COLEMAN, (Cambridge), Lecturer in Russian from 1 September 1960
W. R. CONKIE, B.A.Sc. (Toronto), M.Sc. (McGill), Ph.D. (Saskatchewan), Assistant Professor of Physics from 1 September 1960

D. Friedlander, B.Sc. (Manchester), part-time Lecturer in Psychology from 1 October 1960
J. A. Keast, B.Sc., M.Sc. (Sydney), M.A., Ph.D. (Harvard), Assistant Professor in Biology from 1 September 1960
D. L. C. MacLachlan, M.A. (Glasgow), M.A. (Yale), Ph.D. (Glasgow), Lecturer in Philosophy from 1 September 1960
E. C. B. Pederson, B.Eng., M.Sc. (Saskatchewan), Ph.D. (McGill), Lecturer in Physics from 1 September 1960
A. M. Taylor, B.A., M.A. (Southern California), Ph.D. (Oxford), part-time Lecturer in Geography from 1 September 1960
P. P. Vishwakarma, M.B.B.S. (Patna), Ph.D. (Cincinnati), Demonstrator and Research Associate in Pharmacology from 1 July 1960

On Leave of Absence 1961-2

J. R. Allen, Assistant Professor of Physics, for the sessions 1961-2 and 1962-3; sabbatical leave for 1961-2
A. P. Fell, Lecturer in Philosophy
R. J. Hand, Associate Professor of Business, sabbatical leave
J. E. Hodgetts, Professor of Political Science
G. Rosenbluth, Associate Professor of Economics, sabbatical leave
H. L. Tracy, Professor of Classics and Head of the Department

Promotions 1961-2

R. H. Clark, Assistant Professor of Chemical Engineering, to the rank of Associate Professor
E. R. Corneil, Lecturer in Mechanical Engineering, to the rank of Assistant Professor
J. E. Fay, Lecturer of Medicine, to the rank of Assistant Professor
A. M. Fox, Assistant Professor of Spanish, to the rank of Associate Professor
S. Fyfe, Lecturer in Political Science, to the rank of Assistant Professor
J. Inglis, Assistant Professor of Psychology, to the rank of Associate Professor
W. P. Jollie, Lecturer in Anatomy (Histology), to the rank of Assistant Professor
B. J. Kirby, Lecturer in Mathematics, to the rank of Assistant Professor
B. N. Kropp, Associate Professor of Anatomy (Histology), to the rank of Professor
S. G. Laverty, Assistant Professor of Psychiatry, to the rank of Associate Professor
J. K. MacDonald, Lecturer of Spanish, to the rank of Assistant Professor
W. J. S. Melvin, Assistant Professor of Surgery, to the rank of Associate Professor
J. Newell, Lecturer of English, to the rank of Assistant Professor
R. A. Pierce, Lecturer of History, to the rank of Assistant Professor
K. E. Russell, Assistant Professor of Chemistry, to the rank of Associate Professor
S. E. Smethurst, Professor of Classics, to be Head of the Department
W. M. Smith, Associate Professor of Chemistry, to the rank of Professor
J. E. Smyth, Associate Professor of Commerce, to the rank of Professor
L. S. Valberg, Lecturer of Medicine, to the rank of Assistant Professor
R. L. Watts, Lecturer of Philosophy, to the rank of Assistant Professor
D. Waugh, Associate Professor of Pathology, to the rank of Professor

Appointments for 1961-2

A. Brebner, B.Sc. (Aberdeen), A.M.I.C.E., Ph.D. (Glasgow), Chairman of the Department of Civil Engineering

New Appointments for 1961-2

D. J. C. Bures, B.A. (Queen's), Assistant Professor of Mathematics from 1 September 1961

G. C. Bush, B.A. (McMaster), S.M. (M.I.T.), Ph.D. (Queen's), Assistant Professor of Mathematics from 1 September 1961

O. E. Corvalan, Profesor en Letras (Tucumán, Argentina), Lecturer in Spanish and Italian from 1 September 1961

C. L. Emery, B.Sc., M.Sc. (Queen's), Assistant Professor of Mathematics and Mining Engineering from 1 September 1961

H. C. Evans, B.Sc., M.Sc. (Queen's), Lecturer in Physics from 1 September 1961

E. L. Harrison, B.A. (Manchester), M.A. (Oxford), Associate Professor of Classics from 1 September 1961

F. W. Judge, B.Com. (Manitoba), M.B.A. (Harvard), Professor in the School of Business from 1 September 1961

J. A. Leith, B.A. (Toronto), M.A. (Duke), Ph.D. (Toronto), Lecturer in History from 1 July 1961

O. Loken, B.Sc., M.Sc. (Oslo), Assistant Professor of Geography from 1 September 1961

R. L. McIntosh, B.A., M.Sc. (Dalhousie), Ph.D. (McGill), Professor of Chemistry and Head of the Department from 1 July 1961

D. D. Monieson, B.S. (Vermont), M.B.A. (Miami), Ph.D. (Ohio), Associate Professor in the School of Business from 1 July 1961

M. W. Partington, M.B., B.S., Ph.D., D.C.H. (London), M.R.C.P. (Edinburgh), L.M.C.C., Assistant Professor of Paediatrics from 1 July 1961

Margaret Reesor, B.A. (Victoria College), M.A. (Toronto), Ph.D. (Bryn Mawr), Lecturer in Classics from 1 September 1961

J. A. Riegel, A.B., M.A. (California), Ph.D. (California), Assistant Professor of Biology from 1 September 1961

K. B. Sayeed, B.A., M.A. (Madras), B.Sc. (London School of Economics), Ph.D. (McGill), Assistant Professor of Political Science from 1 July 1961

D. S. Swain, B.J. (Carleton), Director of Public Relations from 1 April 1961

R. S. Thoman, B.A., M.A. (Colorado), Ph.D. (Chicago), Associate Professor in Geography from 1 September 1961

J. Thomson, Ph.D. (Edinburgh), Lecturer in Chemistry from 1 September 1961

E. G. Torrible, B.Sc. (University College of North Wales, Bangor), A.R.I.C., Ph.D., Lecturer in Chemistry from 1 September 1961

J. L. Usher, B.A. (Saskatchewan), M.Sc., Ph.D. (McGill), Associate Professor in Geological Sciences from 1 September 1961

Honours and Activities

MARGARET ANGUS was a member of the Civic Committee on the Preservation of Buildings of Historical and Architectural Value and continues on the Executive of the Kingston Historical Society.

WILLIAM ANGUS was commissioned by the Grolier Society of New York to contribute articles on Canadian Theatre and Canadian Theatre celebrities for the Grolier Encyclopaedia.

J. V. BASMAJIAN was appointed to the Editorial Board of the Canadian Federation of Biological Societies and was made editorial consultant for *The Canadian Journal of Surgery*. In October 1960, he was the adjudicator for the *C A M S I Journal* contest and later in that year, he was elected a trustee of the Kingston Board of Education. He was chairman of the Committee on Public Lectures at Queen's University for 1960-1. Dr BASMAJIAN accepted an invitation to give the 'University-Lecture' in October 1961 at Cornell University, and to be guest speaker at the annual convention of the Canadian Physiotherapy Association in Montreal in April 1961.

S. A. BENCOSME was invited to conduct a seminar in the Department of Physiology at the University of Iowa in the fall of 1960 and early in 1961, he was invited to give a seminar to the Senior Officers' Mess of the Royal Military College. He was programme chairman of a symposium at the annual meeting of the Ontario Association of Pathologists in Toronto, and a member of the executive of the Burton Society of Electron Microscopists. Dr BENCOSME was asked by the Board of Editors of the newly constituted Journal, *Annual Review of Experimental Pathology*, to write a chapter.

L. G. BERRY was elected treasurer of the International Mineralogical Association for 1960-4. He was the Canadian delegate to the Fifth Congress International Union of Crystallography at Cambridge in August 1960, and the same month he was the Canadian delegate to the International Geological Congress and International Mineralogical Association at Copenhagen.

R. E. BESCHEL was elected in April 1960 senior botanist of the Jacobsen-McGill University Arctic Research Expedition 1960-2 to Axel Heiberg Island, North West Territories. In November 1960, he was invited to serve as a scientific adviser to the Arctic Institute of North America.

G. BESSETTE delivered, in the spring of 1961, a lecture to the Ontario French Club of the University of Western Ontario, and to the Centre de recherches de littérature canadienne-française of the University of Ottawa. The Canada Council awarded him a grant for the publication of *Les Pédagogues*, and purchased a number of copies of his *Le Libraire* for distribution abroad by Canadian embassies and consulates. *Le Libraire* was chosen by the Grand Jury des Lettres, 1961 meeting in Montreal, as one of the ten best French-Canadian novels published between 1946-60.

J. M. R. BEVERAGE was elected a Fellow of the Royal Society of Canada during the past year. He was invited to present papers by the Ontario Public Health Association, the Chemical Institute of Canada and the Canadian Heart Association. He acted as a member of the Fisheries Research Board of Canada, the Panel on Nutrition and Metabolism of the Defence Research Board, Council for the Canadian Biochemical Society, the Council for the Canadian Society for Clinical Chemistry, and he was chairman of the Canadian National Committee for the International Union of Biochemistry. Also during the year, Dr BEVERIDGE was appointed vice-chairman of the

Canadian Committee on Fats and Oils, official Canadian delegate to the Vth International Congress of Biochemistry to be held in Moscow, and associate editor of the *Canadian Journal of Biochemistry and Physiology.*

J. M. BLACKBURN was elected a Fellow of the Canadian Psychological Association at their annual meeting in May 1960. He was appointed the representative of Queen's University on the Board of Directors of the Ontario Educational Research Foundation. He was also appointed the representative of Queen's University as adviser to the Board of Governors of Trent College, Peterborough.

ELDON M. BOYD was invited to be a member of the Joint Expert Committee on Food Additives of the World Health Organization and the Food and Agriculture Organization of the United Nations at its meeting in Geneva, Switzerland, in December 1960. He was chairman of the Section on Anaesthetics of the American Society for Pharmacology and Experimental Therapeutics, Atlantic City, 1961, and he was invited to speak on drug toxicity at the Gordon Research Conferences in New Hampshire. Dr Boyd was appointed a member of the Editorial Advisory Board of the *Journal of New Drugs,* New York, and he was elected honorary president of the Alma Mater Society of Queen's University.

A. BREBNER was appointed as the Engineering Institute of Canada representative to the Canadian Standards Association Committee on Developing a National Code for Aluminum Pressure Piping.

G. MALCOLM BROWN was appointed during the year a member of the newly formed Medical Research Council.

H. M. CAMPBELL was awarded the Canadian Decoration (C.D.), which is a decoration for serving for twelve continuous years in the Active Army or Militia.

R. H. CLARK was invited in the fall of 1960 to take part in the Tours of Speakers programme organized by the Chemical Institute of Canada, and he gave a series of lectures in Quebec. He was also appointed a member of the Chemical Engineering Education Committee of the Chemical Institute of Canada, and was made a corresponding member of a similar committee organized by the Institution of Chemical Engineers.

H. G. CONN was appointed in January 1961, by the Department of External Affairs, to carry out a survey of requirements in connection with Regional Engineering Colleges in India.

A. V. CORLETT was again chairman of the Committee on Education for the Mineral Industry of the Canadian Institute of Mining and Metallurgy.

E. R. CORNEIL was awarded the degree of Ph.D. in the Faculty of Engineering (Electrical Engineering — Control Systems) by the University of London, England, in November 1960.

J. DE MARGERIE, in collaboration with Dr BOYD of Edmonton, addressed the Canadian Ophthalmological Society. Dr DE MARGERIE's grant from the Canadian Life Insurance Officers' Association was renewed.

ARLISS DENYES was elected a Fellow of the American Association for the Advancement of Science.

A. VIBERT DOUGLAS received the honorary degree of Doctor of Laws from McGill University in October 1960.

A. R. C. DUNCAN was a member of Region III (Ontario and New York) Woodrow Wilson Fellowship Foundation Committee, and he was president of the Canadian Philosophical Association. In the early summer of 1960, he was guest speaker at the annual banquet of the Canadian Physicists Association, at the International Guidance Conference held at Queen's University, and at the Brockville Teachers Conference. He was also guest speaker in the fall of that year at Fenwick High School Commencement, at the Ontario Curriculum Development Annual Conference in Toronto, and at the Annual Meeting of the Toronto Branch of the Personnel Association.

H. EICHNER was awarded the J. G. Robertson Prize in 'recognition of distinguished work in Germanic studies published in the British Isles'.

W. R. GHENT was made a member of the American College of Surgeons in San Francisco in October 1960.

J. E. GIBSON was elected a Fellow of the American College of Physicians in April 1960.

I. HALPERIN gave an address, by invitation, to a meeting of the mathematics section of the Royal Society of Canada at its meetings in June 1960 in Kingston. He was invited to attend and present a paper at a Symposium on Linear Spaces held at Hebrew University, Jerusalem, in the summer of 1960, and the next month he gave a talk at the Hungarian Mathematical Congress in Budapest. In April 1961, Dr HALPERIN was invited to speak at the annual meeting of the National Council of Teachers of Mathematics in Chicago. During August-September 1961, he is giving a course of lectures at the Seminar of the Canadian Mathematical Congress in Montreal.

R. J. HAND was granted a fellowship from the University of Chicago for study and research at their School of Business in 1961-2.

G. A. HARROWER was named as one of the travelling lecturers of the Canadian Association of Physicists and visited, on their behalf, the University of Montreal, Sir George Williams University and McGill University.

J. D. HATCHER was re-appointed to the Defence Research Board Panel on Cold Physiology.

M. DARIA HAUST, together with Dr MORE, was invited to participate in a Symposium on Anticoagulants and Fibrinolysins held in Toronto in February 1961. She was appointed a Research Associate of the Ontario Heart Foundation for 1961-2.

J. E. HAWLEY was appointed associate editor of the *Journal of Economic Geology* and to the honorary advisory board of the new *Journal of Petrology*, published at Oxford.

H. W. HILBORN was elected vice-president of the Kingston Branch of the Humanities Association of Canada, and a member of the Executive Council of the Ontario Modern Language Teachers' Association. He was re-elected chairman of the Spanish sub-section of the Ontario Modern Language Teachers' Association.

J. E. HODGETTS was appointed editorial director of the Royal Commission on Government Organization.

JAMES INGLIS was invited to read a paper on Psychological and Social Aspects of Ageing in Relation to Mental Health at the International Seminar in Berkeley, California, in August 1960. He also presented a scientific paper to the 5th Congress of the International Association of Gerontology in San Francisco in August 1960. He was invited to take part in June 1961 as a member of the Geriatric Panel of the 3rd World Congress of Psychiatry in Montreal. The Foundation's Fund for Research in Psychiatry made an interdisciplinary teaching award to appoint Dr INGLIS to Queen's University Department of Psychiatry in January 1961.

D. Q. **Innis** took part in a panel discussion for the Ontario Geography Teachers' Association at the meetings of the Ontario Educational Association in the spring of 1960. He was also a panel member on a CKWS-TV discussion of the USSR. At the invitation of the Royal Military College, he taught three courses at the College in 1960-1. He was asked to contribute articles on Ontario towns for the Grolier Encyclopaedia. In the summer of 1960, Dr **Innis** presented a paper at the Canadian Association of Geographers meeting in Kingston, and a paper of his was accepted for presentation in the Applied Geography section of the International Geographical Union meetings in Stockholm. He was invited to visit the University of Moscow where he was taken on a tour and entertained by the head of the Economic Geography Department.

P. H. R. **James** was appointed to the Associate Commitee on Experimental Psychology of the National Research Council of Canada. He presented a paper at the annual meeting of the American Psychological Association in Chicago in the summer of 1960. He was invited to present a paper at the VIIth International Ethology Conference to be held at the Max-Planck Institüt für Verhaltensphysiologie, Seewiesen in September 1961.

J. K. N. **Jones** lectured by invitation at the University of Edinburgh and in Paris in the summer of 1960, and at the National Institute of Health at Washington in April 1961. He was elected a member of the Board of Governors of the Ontario Research Foundation, a Fellow of the Royal Society of Canada and a Fellow of the Chemical Institute of Canada.

H. G. **Kelly** was elected an associate of the Royal Society of Medicine, London, England, and he was appointed as an examiner for Certification in Medicine by the Royal College of Physicians and Surgeons of Canada.

G. **Krotkov** was president of Section V of the Royal Society of Canada from June 1959 to June 1960 and he was elected president of the Canadian Society of Plant Physiologists in May 1960. For the past three years, he has been a member of the National Research Council Screening Committee for research grants in biology.

R. D. **Laurenson** addressed the Morris Hall banquet in Leonard Hall in March 1961. In October of the previous year, he presented a paper in Toronto at the Second Annual Conference on the Rheumatic Diseases, and he gave the second annual lecture on Medical Education to the Canadian Association of Medical Students and Interns at Kingston.

A. M. **Laverty** was elected to the Board of Education for a fifth two-year term and was also elected president of the Kingston Branch of the United Nations Association. During the college year, he preached in the College Chapels of the Rochester Institute of Technology and St Lawrence University and at the Baccalaureate Service of Chatham College, Pittsburgh, Pennsylvania.

L. G. **Macpherson** was elected president of the Association of Canadian Schools of Commerce and Business Administration for the year 1960-1.

D. M. **Mathers** was appointed a member of the Faith and Order Commission of the World Council of Churches.

G. A. **Mayer** was appointed Research Associate of the Ontario Heart Foundation in July 1960. He gave a paper at the Symposium on Anticoagulants and Fibrinolysis in Toronto early in 1961.

J. **Meisel** accepted invitations during the past academic year to speak at the Ontario Agricultural College, the Second Annual Conference of the Canadian National Commission for Unesco and at McMaster University.

A. W. Mewett was elected to the Executive Council of the Canadian Association of Comparative Law.

J. A. Milliken became certified in Internal Medicine with the American Board of Internal Medicine in November 1960.

R. H. More was invited to present a paper on a Symposium of International Panelists for the Canadian Heart Association in Toronto in February 1961. He was one of four Canadians asked by the president of the International Academy of Pathology to submit a paper for the meeting in London.

C. D. Nelson presented papers, by invitation, in a symposium at the annual meeting of the American Society of Plant Physiologists at the University of Oklahoma, to the Graduate School of the University of Toronto, and to the Graduate School of Cornell University.

R. W. Payne read papers at the seventeenth annual meeting of the American Psychosomatic Society in Montreal, at the Annual Conference of the Canadian Psychiatric Association in Banff, at the Annual Conference of the Canadian Psychological Association, Kingston, and at the Annual General meeting of the Ontario Psychological Association in Hamilton.

M. B. Perry gave lectures during the year to the American Chemical Society in New York and to the Canadian Royal Society. He was also invited to speak to the Biochemistry Division, Gordon Research Conference in New Hampshire, and to the Cellulose Division of the American Chemical Society in Chicago.

A. C. Plewes was elected to the editorial board of the *Canadian Journal of Chemical Engineering.*

D. A. Rosen addressed during the year the Montreal Ophthalmological Society, the Section of Opthalmology of the Toronto Academy of Medicine, and the Wilmer Residents Association of the Johns Hopkins Hospital.

G. Rosenbluth presented papers, by invitation, to the Workshop on Industrial Organization, the University of Chicago, and at the convention of the Gesellschaft für Wirtschafts und Sozialwissenschaften, Germany. He presented a brief and oral testimony to the House of Commons Committee on Banking and Commerce, on amendments to the Combines Investigation Act. Dr Rosenbluth was awarded a Canada Council Senior Research Fellowship for the academic year 1961-2.

Malcolm Ross was elected to the Council of the Royal Society of Canada as a representative of Section II. He received a grant from the Nuffield Foundation for summer research in Britain.

E. S. Russell was chairman of the Ontario Division of the Canadian Anaesthetists' Society, and provincial representative of Anaesthesia to the Department of Health — Perinatal Mortality Study.

Stuart Ryan delivered two papers before the Second Commonwealth and Empire Law Conference at Ottawa in September 1960.

H. Grant Sampson delivered a paper and took part in a panel discussion during the Conference of the Association of College and University Concert Managers in New York City in December 1960. His first performance of Piano Sonata in D minor was broadcast over Radio Station CFRC in the early part of 1961.

E. Sandborn received a grant for the coming year from the National Research Council for a research study.

B. W. SARGENT was a member of the Organizing Committee for the International Conference on Nuclear Structure, which was held at Queen's University in 1960. He served on the Programme Committee for the Fifteenth Annual Congress of the Canadian Association of Psysicists, which met at Queen's University in June 1960. A member of the National Research Council, he is chairman of its Review Committee for the Laboratories of the Council. He was re-appointed by the National Cancer Institute of Canada to its Advisory Committee on the Post-Graduate Training of Radiation Physicists. The Ontario Research Foundation has appointed him to its Screening Committee on Applications for Grants in Aid of Research in physics, mathematics, astronomy, geology and geophysics.

G. C. SHAW received in June 1960 his degree of Master of Science in Industrial Management from the Massachusetts Institute of Technology.

L. A. SKEOCH received a grant from the Canada Council in April 1960 which assisted him to spend two months in Sweden studying the Swedish legislation on restrictive practices. He was invited to attend the International Conference on Restraints on Competition at Frankfurt-on-Main in the summer of 1960.

D. W. SLATER was appointed in June 1960 chairman of the Statistics Committee of the Canadian Political Science Association for a two-year term, and also chairman of the Committee for the Second Statistical Conference of the Canadian Political Science Association. He was awarded a Canada Council grant for a field trip for *Urban Economic Studies*, and in the winter of 1960, he was appointed the Ford Foundation Faculty Research Fellow at Queen's University.

D. C. SMITH was appointed, during the summer 1961, a research fellow of the Institute for Economic Research at Queen's University.

J. M. STEDMOND received a Nuffield Foundation fellowship for the summer of 1960 to study at the British Museum Reading Room, London.

H. F. STITCH was elected to the Board of Editors of *Acta Histochemica* and became a member of the New York Academy of Science.

R. W. THOMPKINS, through his private consulting practice, reviewed successfully a problem of the Lake Shore and Wright-Hargreaves Mines. He was called to Grants, New Mexico, by the Kermac Nuclear Fuels Corporation to advise on a critical situation in the mine and the recommendation he made was carried out successfully. He consulted also during the summer months for mines in Ontario, Quebec and Saskatchewan.

M. C. TILLOTSON was elected president of the Canadian Association of University Business Officers.

D. L. TOWNSEND was elected vice-president of the soils and materials committee of the Canadian Good Roads Association. He was re-elected to membership in the Associate Committee on Soil and Snow Mechanics of the National Research Council, and he addressed the Ottawa Soil Mechanics Group on recent research into the shear strength of sands. Professor TOWNSEND was awarded a National Science Foundation Scholarship for further studies in the engineering materials sciences at Iowa State College during the summer of 1960.

L. S. VALBERG was granted the F.R.C.P.(C) in 1960 and was awarded a Medical Research Associateship in 1961.

S. L. VANDEWATER was guest lecturer for the Department of Anaesthesia at McGill University, and the Academy of Medicine at Toronto. He also spoke at the Ontario Medical Association's annual meeting, Section of Anaesthesia.

He was appointed to the regional board of the *Canadian Anaesthetists' Society Journal,* and appointed an examiner for the Certification in Anaesthesia by the Royal College of Physicians and Surgeons.

P. VISHWAKARMA gave a paper in Atlantic City at the meetings of the Federation of American Societies for Experimental Biology in April 1961.

R. L. WATTS was acting tutor in politics for Balliol College, Oxford, for part of 1961. He contributed to two B B C programmes, giving a talk on 'Nigerian Federalism' in August 1960 for the Caribbean Service, and participating in a discussion on 'South Africa and the Commonwealth' in March 1961 for the Home Service. He was asked by Oxford University to help conduct a weekly seminar on 'Commonwealth Government'.

A. S. WEST was local chairman of the Second Black Fly Conference (International) which was held at Lake Opinicon in September 1960. He was consultant to the Advisory Panel on Entomological Research of the Defence Research Board, and a member of the Advisory Committee on Fisheries and Wildlife Research of the Ontario Research Foundation. He was coordinator of the biting fly control for Quebec North Shore and Labrador. Results of research were presented at meetings in Ottawa, Guelph, Atlantic City and at Lake Opinicon. Informal meetings have been held by Dr WEST with various groups to develop cooperative projects at Saskatoon, Ottawa, Sault Ste Marie and Toronto. A service to the public in the identification of insect and other invertebrate material and advice as to control measures has been provided.

G. WHALLEY gave a series of six lectures in the fall of 1960, at which the inmates of the Kingston Penitentiary were allowed for the first time to take part in public courses of instruction. During the year he addressed the Baconian Society. He gave a paper at a symposium of the National Conference of Canadian Universities and Colleges and also at a symposium of the Royal Society of Canada in June 1960.

D. NALDRETT WHITE was elected a Charter Fellow of the Canadian Society of Electroencephalographers, honorary president of the Canadian Association of Registered Electroencephalographic Technicians, and he was re-appointed chairman of the Neurology Committee of the Royal College of Physicians of Canada. During the year he was also elected a full member of the American E E G Society.

F. J. L. YOUNG was appointed to the Advisory Council, St George's College.

Major Awards Made By Queen's University 1960-1

Faculty of Arts and Science

MAJOR AWARDS

Prince of Wales Prize, awarded to the graduating students in the Faculty of Arts and Science who are adjudged to have the best academic records—divided equally between Janet P. Bews, Kingston, Ontario, and J. A. R. Holbrook, Ottawa, Ontario

Great Books of the Western World Award, given by the Encyclopaedia Britannica of Canada Limited, to a student who has exhibited achievement in areas of liberal education as well as excellence in his chosen field — J. A. R. Holbrook, Ottawa, Ontario

Golden Key of Merit, given by the Canadian Section of the Society of Chemical Industry to the student with the highest standing in the final year of the Honours Course in Chemistry — P. F. Barrett, Port Dover, Ontario

Jenkins Trophy, awarded annually to the student who brings the most honour to the University by his athletic and scholastic ability — D. E. A. Robb, Scarborough, Ontario

TRAVELLING FELLOWSHIPS AND SCHOLARSHIPS

R. Samuel McLaughlin Travelling Fellowship, $2500 — C. D. MacNiven, Oxford, England

Reuben Wells Leonard Travelling Fellowship, $300 plus a travel grant of $225 — G. G. Davis, Kingston, Ontario

German Exchange Scholarship for the session 1961-2 — Joyce E. McKee, Red Deer, Alberta

St Andrews Exchange Studentship for the session 1961-2 — Sandra E. Cowan, Hamilton, Ontario

RESIDENT FELLOWSHIPS

R. Samuel McLaughlin Resident Fellowships, $1200 each (these Fellowships may carry with them a summer supplement up to a value of $800 payable at the rate of $200 per month):

S. A. Alleyne, Sackville, New Brunswick
J. H. Archer, Regina, Saskatchewan
L. G. E. Edmondson, Kingston, Jamaica
H. C. Lim, Bukit Mertajam, P.W., Malaya
M. E. Morf, Verdun, Quebec
Mary G. MacDonnell, Montreal, Quebec
A. J. Naldrett, Guildford, England

D. O. Notman Teaching Fellowships, $2500 each —

R. Hulyalkar, Poona, India
R. Shigeishi, Toronto, Ontario

C.I.L. Fellowship in Chemistry and Chemical Engineering, $2000 — H. G. Jones, Aberystwyth, Wales

University Fellowship, $1500 plus free tuition — R. L. Phillips, San Angelo, Texas

Shell Oil Company Fellowship, $1200 plus a summer supplement —D. R. Thompson, Queensboro, Ontario

Reuben Wells Leonard Resident Fellowship, $1200 — Shelagh C. Courtney, Brockville, Ontario

Clarence J. Hicks Fellowship in Industrial Relations, $1100 — L. A. Kelly, Fife, Scotland

John Lindsley Scholarship in Economic Geology and Mineralogy, $800 — P. L. Reynolds, Fredericton, New Brunswick

Maritime Provinces Trade Relations Fellowship, $750 — B. D. Stapleton, St John's, Newfoundland

Sir James Aikins Fellowship in Canadian History and a *University Fellowship,* $750 — J. L. Stokesbury, Wolfville, Nova Scotia

Western Ontario Graduates Fellowship in History and a *University Fellowship,* $750 — Jane E. Graham, Almonte, Ontario

George MacBeth Milligan Fellowship in Philosophy, $500 — J. Kekes, Budapest, Hungary

MEDALS

Awarded in each major subject to the student who has made the highest standing on the whole of the Honours work in that subject, provided that such standing is Class I.

Chemistry — P. F. Barrett, Port Dover, Ontario
Commerce — A. Alison Mackintosh, Kingston, Ontario
Economics — Judith L. Rice, Campbellton, New Brunswick
English — Mary G. Macdonnell, Montreal, Quebec
French — Catherine J. White, Windsor, Ontario
Geology — R. W. Hornal, Willowdale, Ontario
German — R. H. Engfield, Sarnia, Ontario
Greek — J. D. W. Steele, Peterborough, Ontario
History — P. S. Fritz, Delta, Ontario
Latin — Janet P. Bews, Kingston, Ontario
Mathematics — J. A. R. Holbrook, Ottawa, Ontario
Philosophy — J. Kekes, Budapest, Hungary
Physics — J. R. Wilson, Manotick Ontario
Politics — R. J. Gathercole, LaTuque, Quebec
Psychology — Dawn A. Campbell, Windsor, Ontario

Faculty of Applied Science

MAJOR AWARDS

D. S. Ellis Memorial Award, given to the graduating student who, in the opinion of his classmates, has contributed to the University life through extra-curricular activities and athletics and who has maintained a satisfactory academic standing — T. M. Nickerson, Cornwall, Ontario

D. M. Jemmett Award, given to the graduating student in Electrical Engineering with the highest average in Electrical courses of all years — K. F. Lee, Hong Kong.

Great Books of the Western World Award, given by the Encyclopaedia Britannica of Canada Limited, to a student who has exhibited achievement in areas of liberal education as well as excellence in his chosen field — J. S. Hartman, Toronto, Ontario

Golden Keys of Merit, given by the Canadian Section of the Society of Chemical Industry to the students with the highest standing in the final year of the courses in Chemistry and Chemical Engineering:
Chemistry — E. Hamanaka, Geraldton, Ontario
Chemical Engineering — R. I. Jenkins, Ottawa, Ontario

B. E. C. Joyce Memorial Award, given to the graduating student who, in the opinion of his classmates and the departmental staff is the outstanding graduating student in Chemical Engineering — R. I. Jenkins, Ottawa, Ontario

TRAVELLING FELLOWSHIPS AND SCHOLARSHIPS

R. Samuel McLaughlin Travelling Fellowship, $3000 plus a travel grant of $350 — D. G. Ryan, Quebec, Quebec

Reuben Wells Leonard Travelling Fellowship, $300 — F. W. Maine, Burlington, Ontario

RESIDENT FELLOWSHIPS

R. Samuel McLaughlin Resident Fellowships, $1200 each (these fellowships may carry with them a summer supplement up to a value of $800 payable at the rate of $200 per monh):
M. Kumaran, Bombay, India
S. V. Subramanian, Madras, India
A. G. Advani, Bombay, India

Polymer Corporation Teaching Fellowship, $2500 — M. Hammerli, Prescott, Ontario

Northern Electric Company Fellowship, $1500 — H. S. R. Iyengar, New Delhi, India

MEDALS

Governor-General's Medal, awarded to the student who has made the highest standing throughout the four years of his course: J. S. Hartman, Toronto, Ontario

Association of Professional Engineers of Ontario Gold Medal, awarded to the student with the highest standing in the final year — C. G. Gray, Toronto, Ontario

Departmental Medals, awarded in each Department to the student of the graduating class who has the highest average standing in the third and fourth years and has made honours standing in the fourth year:
Chemical Engineering — R. D. Voyer, Cornwall, Ontario
Chemistry — J. S. Hartman, Toronto, Ontario
Civil Engineering — M. D. Harmelink, Chatham, Ontario
Electrical Engineering — K. F. Lee, Hong Kong
Geological Sciences — R. A. Freeze, Ottawa, Ontario
Mechanical Engineering — E. O. Moeck, Calgary, Alberta
Metallurgical Engineering — T. W. Watson, Rouyn, Quebec
Physics — C. G. Gray, Toronto, Ontario

Faculty of Medicine

A. E. MacRae Award in Social Engineering — E. Z. Rabin, Ottawa, Ontario

TRAVELLING FELLOWSHIPS

Alpha George Christian Hoffman Fellowships for Pathological Research:
$1000 — W. E. N. Corbett, Ottawa, Ontario
400 — D. M. Robertson, Kingston, Ontario
Beta George Christian Hoffman Fellowship in Surgery, $750 —
W. M. Podeworny, Copper Cliff, Ontario

MEDALS

Medicine — D. A. K. Roncari, Hamilton, Ontario
Mylks Medal in Obstetrics and Gynaecology — E. Z. Rabin, Ottawa, Ontario
Surgery — L. M. Kalfuss, Outremont, Quebec

Faculty of Law

Medal in Law — W. P. A. Kelly, Prescott, Ontario
Carswell Book Prize — M. J. O'Grady, Noranda, Quebec

School of Nursing

Medal in Nursing — Carol A. Reid, Oakville, Ontario
Jean McMartin Weir Prize in Nursing — Mary S. Buttle, Pakenham, Ontario

Research Awards

Queen's University students and graduates have qualified in 1961 for awards from the National Research Council as follows:

Postdoctorate Overseas Fellowship, $3500-$4500 — W. E. Hale (Geological Sciences)

$2200 — G. J. M. Aitken (Electrical Engineering)
N. E. Anderson (Chemistry)
R. W. Breithaupt (Electrical Engineering)
R. J. Clench (Mathematics)
G. G. Davis (Chemistry)
W. J. Dohaney (Civil Engineering)
T. E. Drake (Physics)
G. L. Dyer (Physics)
A. R. Elliott (Electrical Engineering)
B. O. Fraser-Reid (Chemistry)
E. Froese (Geological Sciences)
S. W. Gunner (Chemistry)
F. N. Hainsworth (Physics)
G. A. Harpell (Chemistry)
A. H. W. Hauschild (Biology)
J. S. Hogg (Chemistry)
R. G. Johnson (Physics)
F. C. Lockwood (Mechanical Engineering)
T. M. Luke (Physics)
R. E. A. Mason (Chemical Engineering)
P. P. M. Meincke (Physics)

R. I. McDonald (Mathematics)
J. W. MacDougall (Physics)
H. F. MacEwen (Chemistry)
R. McPherson (Physics)
Joan H. Patriarche (Biology)
W. R. Paulson (Physics)
D. Pouli (Chemistry)
D. G. Ryan (Physics)
N. H. Sagert (Chemistry)
D. G. Sinclair (Physiology)
D. R. Springett (Physics)
R. J. Stoodley (Chemistry)
E. B. Tregunna (Biology)
P. M. V. Trip (Biology)
C. J. Turkstra (Civil Engineering)
J. C. Turner (Chemistry)
$1800 — P. F. Barrett (Chemistry)
S. C. Barton (Chemistry)
R. C. Biggs (Mathematics)
J. H. Breckenridge (Chemistry)
Y. H. Chan (Mathematics)
A. E. Earl (Chemical Engineering)
C. G. Gray (Physics)
E. Hamanaka (Chemical Engineering)
J. S. Hartman (Chemistry)
Agnes Herzberg (Mathematics)
J. A. R. Holbrook (Mathematics)
R. W. Hornal (Geological Sciences)
K. G. A. Jackson (Chemistry)
W. J. Kamphuis (Civil Engineering)
R. T. Laflair (Chemistry)
K. F. Lee (Electrical Engineering)
K. R. Morin (Physics)
J. A. Mackinnon (Physics)
R. G. McLenaghan (Physics)
L. E. Parker (Physics)
J. F. Scott (Civil Engineering)
A. G. Szabo (Chemistry)
R. D. Voyer (Chemical Engineering)
Marion J. Watson (Mathematics)

Queen's University students and graduates have qualified in 1961 for awards from the Ontario Research Foundation as follows:

$2200 — E. C. Appleyard (Geological Sciences)
M. Blecha (Geological Sciences)
G. G. Davis (Chemistry)
T. E. Drake (Physics)
D. J. Fieldhouse (Mathematics)
1400 — G. A. Harpell (Chemistry)
D. R. Springett (Physics)
800 — D. E. Findlay (Geological Sciences)

Some Outside Awards for which Queen's University Graduates Have Qualified

Aletta Marty Memorial Scholarship — Marjorie Allen (Chemistry)

French Government Travelling Scholarship — Catherine J. White

Athlone Fellowships — J. S. Hewitt (Physics)
F. S. Szabo (Physics)
D. R. Woods (Chemical Engineering)

Rockefeller Brothers Theological Fellowship — Margaret S. Slavin

Woodrow Wilson Fellowships:

Awards — Janet P. Bews (Classics) (Honour of award)
R. H. Engfield (German)
P. S. Fritz (History)
J. Kekes (Philosophy) (Honour of award)
C. J. Norman (English) (Honour of award)
G. A. Pennanen (History)
Judith L. Rice (Economics)
P. L. Surette (English)

Honourable Mention —
R. J. Gathercole (International Politics)
R. W. Hornal (Geophysics)
Mary G. Macdonnell (History of Art)
Margaret S. Slavin (English)
J. R. Trevithick (Biochemistry)
Catherine J. White (French)

Canada Council Awards —
Rosetta A. Campbell (Economics)
R. H. Engfield (German) (Honour of award)
P. S. Fritz (History) (Honour of award)
J. Kekes (Philosophy)
R. C. MacGillivray (History)
C. D. MacNiven (Philosophy)
Margaret S. Slavin (English) (Honour of award)
Mary E. White (French)

The Queen Elizabeth II Ontario Scholarships —
C. J. Norman (Honour of award)
Margaret S. Slavin (Honour of award)

Award from the California Institute of Technology —
E. O. Moeck (Mechanical Engineering)

Award from the University of Wisconsin — J. R. Trevithick (Chemistry)

Harvard University Resident Fellowship —
R. W. Hornal (Geological Sciences)

Frank Knox Fellowship at Harvard — Peter McClelland (Economics)

International Nickel Research Fellowship in Mathematics —
J. A. R. Holbrook (Mathematics)

COMMONWEALTH SCHOLARSHIPS AND FELLOWSHIPS

The Commonwealth Plan provides opportunities for Commonwealth students to pursue advanced courses in Commonwealth countries other than their own. The Scholarships are intended for men and women of high intellectual promise who may be expected to make a significant contribution to their own countries on their return from study abroad.

The following Queen's University students have been awarded Commonwealth Scholarships and Fellowships for use elsewhere in 1961-2:

JANET P. BEWS
J. R. DE J. JACKSON
C. J. NORMAN

The following students have been awarded Commonwealth Scholarships and Fellowships for use at Queen's University in 1961-2:

A. M. AHMED (Mechanical Engineering), Pakistan
D. R. BEER (Canadian Political History), Australia
M. P. GRIFFIN (Mathematics) New Zealand
SHOBHA MANE (English) India
M. A. L. RANA (Mining Engineering), Pakistan
H. A. SEALY (Civil Engineering), Barbados

Reports to the Principal

The Faculty of Arts and Science

I have the honour to present the report of the Faculty of Arts and Science for the academic year 1960-1.

ADMISSIONS

After a slight flattening last year in the curve describing our first-year entrance figures, the line sloped upwards again this year, rising from 386 in 1959 to 472 in 1960. The total number of students in the faculty also increased from 1145 to 1332. Present indications suggest that we must anticipate an even sharper rise in entrance figures next year. A faculty committee is continuing the study of entrance requirements and new recommendations are likely to be laid before the faculty during the course of next year.

NUMBERS IN HONOURS

The percentage of students registering in honours continues to rise encouragingly. Although the figure for 1960-1 is 40 per cent (over against 27 per cent in 1959-60), it should be pointed out that this figure includes first-year students in the honours B.Sc. degree. Students working towards an honours B.A. degree are not registered as honours students until their second year. The figure of 40 per cent, therefore, does not represent a straightforward increase of 13 per cent over last year, but reflects to some extent the new regulations for the honours B.Sc. whereby students register as honours students in their first year. It is interesting to note that the number of students graduating with honours rose from 62 in 1960 to 98 in 1961. The corresponding increase in numbers graduating with a general B.A. is smaller: the rise here is from 241 in 1960 to 287 in 1961. The Departments in which increased numbers of honours students is most noticeable are English, Political and Economic Science, Mathematics, Physics, Chemistry and Biology.

DEPARTMENTAL DEVELOPMENTS

There are no major changes to report from individual departments in the faculty this year, but there are a number of general comments to be made. The new Department of Geography is well launched on its career under the headship of Professor RUGGLES, and two new members are being added to his staff in accordance with the original policy of steady development. Under Professor COLEMAN'S guidance and careful planning, the Department of Mathematics is expanding to meet the heavy pressures which naturally bear upon it in a scientific age. An appointment of a full-time lecturer in Russian, Mr D. J. COLEMAN, B.A. (Cantab), was made in late summer of 1960. In consequence, it may be said that the growth of what it is hoped will become a fully-fledged Department of Russian Studies has now begun. Up to last year, only one course in elementary Russian, Russian A, was offered at Queen's; during the past year, a regular Arts language course, Russian 1, was added and also a special course in Russian for honours students in other departments, Russian 31. In the coming year, still another general Arts course in Russian language is being added, and the question of honours courses is being studied. After experimenting for two years with a slightly reduced establishment, the Department of Classics under the pressure of increased numbers, is returning to a full strength of three members. Professor R. L. MCINTOSH, B.A., M.Sc., Ph.D., has been appointed Head of the Department of Chemistry, and new members of staff are being added to cope with what, according to available statistics for the major universities, is one of the largest honours schools in chemistry in Canada. The continued growth of the faculty has rendered necessary a number of new appointments in other Departments including History, Spanish, Psychology, and Political and Economic Science.

STAFF RETIREMENTS

The retirement of Professor GRENVILLE FROST, who has been Head of the Department of Chemistry since the retirement of Professor MCRAE in 1956, brings to a close a long career of devoted service to his department and to the faculty.

SCHOLASTIC ACHIEVEMENTS

The undergraduates in the faculty have distinguished themselves in many fields this year, both in the standard achieved in honours work and in scholarships and fellowships won in open competition with other universities. Whereas in 1960 only 21 per cent of honours students obtained first class honours, in 1961, 42 per cent achieved first class standing, and 43 per cent obtained second class honours. Among other achievements may be mentioned the winning of eight Fellowships and seven Honourable Mentions from the Woodrow Wilson Foundation (figures which place Queen's very high in the list for all Canada), three Commonwealth Fellowships, the honour of two Queen Elizabeth II Scholarships, a Rockefeller Brothers

Theological Fellowship, and nine Canada Council awards. It is pleasant to be able to report that the Scholarship Committee had a peculiarly difficult task in awarding the Prince of Wales Prize, given for all-round academic excellence, on account of the large number of outstandingly good candidates.

SUMMARY

There has been an increase in the number of staff appointments and a few internal changes due to movements of staff between universities. It is gratifying that a number of professors, despite very good offers from other institutions, have elected to remain at Queen's. Members of the faculty can take a proper pride in the academic achievements of their students this year. The increased number of honours students, however, makes it necessary to watch very carefully the student-teacher ratio if we are not to lose the pedagogical advantages associated with a small university. The general increase in students admitted to the faculty has already produced one very grave problem, namely, the size of introductory and first-year courses. The disadvantages attendant upon large classes can be and are being overcome by careful departmental planning and by a judicious use of available staff. These large classes, however, represent a problem which must be constantly borne in mind if honours students of reasonable calibre are to emerge into the second year. It does not in any way detract from the value or significance of research to say that the careful laying of the foundations of learning is still an activity of fundamental importance in the University.

A. R. C. DUNCAN
Dean of the Faculty of Arts and Science

The Faculty of Applied Science

The extension of physical facilities is probably more apparent at the present than it has been for some time. The additions to Nicol Hall, McLaughlin Hall and Gordon Hall represent progress important to the faculty.

Last year I mentioned the growth of research work and the increase in the number of graduate students. During the past session there were fifty-eight graduate students, the highest number to date, and next year it is expected that there will be well over sixty-five. While the number of undergraduate students has decreased somewhat in the past years, it is expected that this trend will reverse itself shortly and that we will again be up to our limit of three hundred in the first year, resulting in approximately eleven hundred in the faculty. This combined load of a maximum number of undergraduate students plus an ever increasing load of postgraduates places a burden on the staff that will result in a lowering of performance unless some relief is obtained. We may reach the point where more graduate students are being accepted than can be handled efficiently with the present staff. Students can be taken on rather quickly but the provision of competent staff is another problem. We must shortly decide whether to extend the staff or to restrict the number of graduate students.

Last June, a BG-15 electronic digital computer was rented by the University and a Computing Centre was provided with facilities in Ellis Hall. It was thought that it might not be used much during the first year but that its usefulness would grow as people became acquainted with it and adapted it to their particular needs. We were quite wrong in this assumption and the Centre has been running full time.

The Employment Service has been expanded somewhat. While the general operation continues under Mr H. J. Hamilton as General Secretary of the Alumni Association, Mr N. G. Stewart (Science '15) is responsible for the day to day operation. During the past year, we have been fortunate in having Professor Arthur Jackson as an assistant to Mr Stewart, on a part-time basis. This extra help has made it possible to work more closely with the boys seeking employment. In general, the picture is about the same as last year as far as the graduating class is concerned, with almost all being placed. The situation in lower years is not so good as several large firms have reduced or eliminated their intake of students for summer employment.

The Advisory Council on Engineering has had another successful year. We are deeply indebted to the members of the Council who have studied our problems effectively with the sole purpose of helping us with their solutions. Members of the Council for the current session are as follows:

General Chairman	Mr G. M. Minard
Vice-Chairman	Mr A. A. Defoe
Sub-Committees	
	Mr Leigh W. Bladon
	Mr J. Bardswich
Mining-Chairman	Mr A. W. Stollery

Civil Engineering-Chairman	Mr W. A. Marshall
	Group Captain H. E. Walker
	Mr A. K. Rowntree
Geology-Chairman	Dr W. A. Roliff
	Mr H. F. Zurbrigg
	Dr S. C. Robinson
Chemical Engineering-Chairman	Mr J. C. Hamilton
	Mr Leslie Cleminson
	Mr K. A. West
Chemistry-Chairman	Mr E. T. Hurley
	Dr W. C. Gardiner
	Dr Hugh Goddard
Mechanical Engineering-Chairman	Mr F. A. Benger
	Mr R. J. Chambers
	Mr I. N. McKay
Electrical Engineering-Chairman	Mr H. S. Dawson
	Mr F. C. Lawson
	Professor C. L. Searle
Physics-Chairman	Mr F. W. Gilbert
	Dr Peter T. Demos
	Dr P. J. Sandiford
Metallurgy-Chairman	Mr S. L. Gertsman
	Mr R. R. Saddington
	Mr R. Thompson

Departmental Notes

Mining

The department is attempting to obtain more rock-testing equipment to be located on the ground floor of Nicol Hall. The graduate programme is attracting attention. The research work on stresses in rocks and measurements is important and is a new approach. It is expected that there will be four postgraduate students on this programme in the coming session.

Mr J. G. Stephenson, Science '60, won a first prize in the C I M student essay contest in the Petroleum and Natural Gas Division.

During the year, members of the staff attended the professional meetings of the Mines Accident Prevention Association of Ontario, and the Canadian Institute of Mining and Metallurgy, Professor Corlett being chairman of the Committee on Education for the Mineral Industry. Mr Emery represented the department and gave a paper on 'The Measurement of Strains in Mine Rocks' at the International Symposium on Mining Research at Rolla, Missouri. The University was also represented by staff members at the Rock Mechanics Symposium at Pennsylvania State University.

The departmental library is quite inadequate but this is being relieved with the addition to the building.

GEOLOGICAL SCIENCES

Dr J. W. KERR has resigned as lecturer to join the Geological Survey of Canada. After three years in the petroleum industry in western Canada, Dr JOHN L. USHER is rejoining our staff and will greatly strengthen the department in the fields of stratigraphy, sedimentation and palaeontology.

The recent acquisition of the top floor of Miller Hall, formerly used by the Drawing Department, has permitted the construction of new laboratories for petrology, palaeontology, and structural geology, as well as providing for office space for staff and graduate students, and a graduate seminar room. Further changes are being made in the west wing of the first floor to allow expansion of the library and map collections which are being endowed very liberally by Mr THAYER LINDSLEY. Temporarily, the Geography Department is being accommodated there but eventually this laboratory will become part of the departmental library.

Undergraduate students specializing in geology in the Faculties of Applied Science and Arts and Science number twenty, the majority majoring in Engineering Geology. Classes in the latter are also attended by graduate students in Civil Engineering. Some thought is being given to the continuation of the petroleum geology option, numbers in which will not likely increase greatly until employment opportunities improve considerably.

The requirement that many honours B.Sc. students in the Faculty of Arts and Science take the first course in geology is probably partly responsible for a 65 per cent increase in enrolment in Geology 1 to about 150 students. This number is close to the capacity of our largest lecture room and has involved raising the laboratory sections from three to four. Even at this, the sections are somewhat overcrowded.

In the past year, there have been four doctorate and eleven Masters' candidates in the graduate division, only two of whom are Queen's students. Applications for next session number about thirty, of which eighteen will likely be accepted.

Dr Ambrose is now chairman of the graduate division.

During the session, visiting lecturers included Dr B. R. Pelletier on Arctic submarine geology, Dr D. R. Derry on iron ores of Africa, Brazil and Canada, Dr R. W. Boyle on diffusion of sulphur isotopes and ore genesis, and Professor H. R. Rice on mining in the U S S R. Drs D. J. McLaren, B. R. Pelletier and D. K. Norris again gave special lectures in petroleum geology.

Dr L. G. Berry, recently appointed treasurer of the International Mineralogical Association for 1960-4, attended the Congress of the International Union of Crystallographers in Cambridge in August. With Dr A. W. Jolliffe, he also attended the International Geological Congress and the Congress of the International Mineralogical Association in Copenhagen in August 1960. In November, Dr Berry was present at the meetings of the Geological Society of America, at Denver, Colorado. Drs Hawley and Jolliffe represented the department at the Quebec meeting of the Canadian Institute of Mining and Metallurgy, while Dr Ambrose was present at the fourth symposium on Rock Mechanics at Pennsylvania State University in March 1961.

Chemical Engineering

The problem of laboratory facilities is becoming more acute each year. This is true especially in the case of graduate work, which we hope will grow each year. We understand, of course, that no changes are planned for us in the near future and we have envisioned a small building programme that will take care of our immediate needs. The department has organized a Ph.D. programme to commence in the 1961-2 session.

This year our Chemical Engineering fourth-year class tried an interesting experiment which we believe was most successful. They contacted some members of Science '58 and invited them to speak to our graduating engineers on a topic concerning 'The Use of the Chemical Engineer in Industry'. The students were most interested in this type of communication and we hope to try it again in the future.

During the past year, Dr R. H. Clark attended a meeting of the Engineering Institute of Canada in Montreal, during which time engineering education methods were discussed. Professor R. K. Code attended the October meeting of the Canadian Institute of Chemistry in Quebec, and took part in the discussions involving editorial policy for the *Canadian Journal of Chemical Engineering*.

METALLURGY

The present staff in Metallurgy numbers three. The immediate objective is to increase this to five in order that the more important branches of Metallurgy can be expertly treated and more research accomplished.

We look forward to renovation and the addition of one floor to Nicol Hall in the summer of 1961. On completion of this work, space should not be a problem for several years to come.

A survey of basic metallurgical equipment requirements has been made and it is estimated that $250,000 is needed to bring our equipment up to the level of the leading schools of metallurgy in Canada and the United States.

It is planned to improve library facilities in Nicol Hall by interchanging the location of the present library and the drafting room.

There are indications of a rising enrolment in Metallurgy with seven students in fourth year, eight in third year, twelve in second year and seventeen in first year.

One graduate student in physical metallurgy and one in extractive metallurgy were enrolled in the past session, and eight M.Sc. students are expected in the 1961-2 session.

The department expects to be in a position to offer a Ph.D. programme in Metallurgy by the fall of 1962. It is expected that this will help in the development of the graduate programme to provide a new source of top quality graduate students.

Dr F. A. HAMES has been awarded a grant-in-aid of research by the American Society for Testing Materials. This is one of five awards made to United States and Canadian schools to further materials science. He was invited to take part in a panel discussion at the national meeting of the American Society for Engineering Education. The topic for discussion was 'The Role of Extractive Metallurgy in the Present Day Metallurgical Engineering Curriculum'. Dr HAMES attended the Canadian Metal Physics Conference at McMaster University in September 1960, and a Symposium on Materials Research in Canada at Vancouver in June 1960.

Although enrolment is above average in Metallurgy, we could comfortably handle three to four times our present numbers.

With our present staff of three, not much increase in research can be expected and coverage of some areas in Metallurgy, even at the undergraduate level, is inadequate.

Some further changes in curriculum were made this year, but much remains to be done. In the fourth-year laboratory courses, the department is experimenting with 'project' type of instruction. This is believed to be more stimulating and educational for the student than following a stereotyped procedure year after year.

Civil Engineering

Professor J. W. Brooks returned to the department after two years at the Middle East Technical University in Ankara. Dr B. Le Méhauté was appointed as a research associate and special lecturer in fluid mechanics. The position made vacant by the death of Dr Oscar Martin was not filled and we are currently endeavouring to find a man to fill this vacancy.

The research funds administered by the department now amount to well over $100,000 per year and a need has been felt for some assistance to the head of the department in carrying out the administrative work. Therefore, it is hoped that an appointment of a chairman will be made for the next session.

A senior technician was added to the workshop staff with a consequent improvement in the maintenance of our laboratory and shop facilities.

Undergraduate and graduate classes remained about the same size as in the previous year although the number of Ph.D. students was increased to four. This increase was made possible in part by the development of laboratory facilities for hydraulic model studies in the building formerly occupied by H M C S Cataraqui on Wellington Street.

Graduate study and research continued to be an increasingly important part of the activities of the department. Of a total of twenty graduate students, four were working for Ph.D. degrees, fifteen for M.Sc. degrees and one for the Diploma in Civil Engineering. The research activities carried out with the aid of these students are reported elsewhere.

Visiting lecturers included Professor A. L. L. Baker of Imperial College, and Dr Eivind Hognestad and Mr A. L. Parme of the Portland Cement Association.

Mechanical Engineering

Our building is at present being expanded to the extent of two floors over the welding shop and thermodynamics laboratory on the rear of the building, which will greatly relieve the congested laboratories, staff office space and library, as well as provide space for expansion of research.

Dr Rice presented a paper on Metal Cutting at the Annual Meeting of the Engineering Institute of Canada in Winnipeg.

Professor Campbell presented Mr Braun's paper on 'Potential in the Free Piston Engine Principle' at the Annual Meeting of the Engineering Institute of Canada in Winnipeg.

Size of classes is satisfactory, staff is overloaded, but the approved additional staff member, when secured, will take care of this. Students are heavily loaded with continual course improvements to keep up with technology.

Dr Rice received his D.S.Sc., from Ecole Polytechnique.

Dr Corneil received his Ph.D. from the University of London.

E. O. Moeck, final year mechanical student, received a Graduate Assistantship at Case Institute of Technology.

R. C. Biggs, final year mechanical student, received an award to attend Stanford University.

Electrical Engineering

Professor D. M. Jemmett retired as Head of the Department and was succeeded by Professor H. H. Stewart.

Mr J. A. Bennett has joined the staff as lecturer.

Mr J. A. Harrison has been engaged as an electronic technician. Half of his time is being devoted to the maintenance and operational supervision of C F R C, and half to the maintenance of electronic equipment in the University.

There has been a reduction in the amount of time devoted to rotating machinery and an increase in the time on control systems. Course and laboratory work have been modified accordingly.

The Westinghouse generalized machine and a small analogue computer have been brought into use.

A new wave analyzer, two wide-band oscilloscopes, and a new R F signal generator have been the main additions to our electronic laboratory.

Space is now at a premium and any increase in the size of classes will require the operation of more laboratory classes in two sections.

Numbers of electrical engineering students are near peak levels and some of our combined classes are larger than they have been at any time since the veterans returned from World War II. So far, we have managed to accommodate all electrical classes in Fleming Hall.

Plans are under way to provide study and work space for graduate students in a former drafting room on the top floor.

Professor C. H. R. Campling and Mr J. A. Bennett attended the AIFE-IRE Conference on 'Non Linear Magnetics and Magnetic Amplifiers' at Philadelphia in October and presented their paper on 'Self-Locking Polyphase Transistor-Magnetic Inverters'.

Professor Campling attended a meeting of the ECPD Education and Accreditation Committee meeting in Montreal in September.

Dr R. Chisholm attended the ceremony and technical discussions associated with the opening of the Dominion Observatory's Radio Observatory at Penticton, British Columbia, in June 1960.

Dr Chisholm presented a paper to the Fifteenth Annual Congress of the Canadian Association of Physicists in June 1960, entitled 'A High Resolution Antenna System to Operate at 830 Megacycles per Second'.

Professor H. S. Pollock was chairman of the APEO Accreditation team which inspected Essex College, and was a member of the team which inspected Carleton University.

Professor H. H. Stewart attended a meeting of the IRE Education Committee held in Montreal in November.

Physics

In 1960, Dr A. R. Johnston resigned from the staff and Drs Conkie and Pederson were appointed. In 1961, Mr J. R. Allen goes on sabbatical leave to the University of Manchester. Permission has been granted to appoint one additional member of staff, making a total of fifteen full-time members in the 1961-2 session.

The new course for students specializing in physics in the Faculties of Applied Science and Arts and Science is being introduced one year at a time. In the Faculty of Applied Science, the introduction of the new course in physics will occur first in the third year, and this is scheduled for the 1962-3 session.

During the last ten years, some reduction in the average teaching load for members of staff has been effected. Further reduction will be necessary before members of staff can give adequate time in the academic session to their research work and the supervision of graduate students. Under the present conditions of growth, additional lecture courses have had to be provided for undergraduate and graduate students and these courses have partly nullified the reduction being sought in average teaching load. Research and graduate work have to be built up in quality and quantity if the department is to attract and hold the best instructors.

During the spring and summer of 1960, the Department of Physics was heavily involved in the planning of conferences. The Fifteenth Annual Congress of the Canadian Association of Physicists was held at Queen's on 8-11 June 1960. A very unusual event in Canada was the International Conference on Nuclear Structure which was held at Queen's on 29 August to 3 September 1960. Spokesmen for the delegates have praised, at the Conference and in printed reviews of it, the arrangements made by Queen's University for the comfort and entertainment of the delegates.

Engineering Drawing

The department, after many years in temporary and sometimes undesirable quarters in several buildings, has enjoyed for the past year the convenience and improved efficiency of operating under one roof. The Engineering Drawing Building (the remodelled Old Gymnasium) with its excellent drafting rooms and lecture rooms has enabled the department to carry out its work much more effectively, and has been a source of pleasure and satisfaction. A very worthwhile result of the change from unattractive shabby surroundings to the bright and pleasant rooms that the department now has for instruction is the noticeable change in the attitude of the students toward their work in the courses given by the department, especially toward work done in the drafting rooms.

Mr D. W. Bews, who is past normal retirement age, has decided to retire at the end of the session and though he may consider some part-time work, a replacement must be found.

The past few years have seen appreciable change in the staff of the department and this has stimulated considerable re-examination and revision of the content of most of the courses given by the department.

Computer Centre

Queen's University Computing Centre was established in May 1960, with a basic Bendix G15D medium size electronic digital computer. The machine room, offices, and library of the Centre are situated on the ground floor of Ellis Hall, and the Centre has the use of the classrooms in that building for the teaching of computer methods and techniques.

The object of making computational facilities available within the University was to assist members of faculty and graduate students in the mathematics of complete theoretical calculations and the processing of experimental data, the simulation of various scientific or business models for the furtherance of teaching methods and the familiarization of students with computer techniques as being introduced into many industries. In this year, the Centre has taught six courses in programming methods to over one hundred members of faculty and graduate students. As a result of these courses, and the recognition by research groups of the advantages of using this facility, the computer has been used in excess of 2500 hours. The result of this increasing demand for computer time from all faculties of the University is the recent installation of an I B M 1620 with a limited immediate range of ancillary hardware and Friden offline tape preparation, verification and documentation equipment.

The Director of Computing has been responsible for the writing and development of science programmes of interest to all operators, but the individual departments and research groups have been responsible for all work connected with their own problems. A list of the work performed on the computer would merely be a repetition of many of the research reports submitted by the separate departments. Research is being carried on within the Centre in the field of interpretive computer languages.

H. G. Conn
Dean of the Faculty of Applied Science

The Faculty of Medicine

I have the honour to present the report of the Faculty of Medicine for 1960-1.

Attendance

The registration is as follows:

	Men	*Women*	*Total*
First Premedical Year	54	10	64
Second Premedical Year	48	8	56
First Medical Year	44	7	51
Second Medical Year	49	6	55
Third Medical Year	55	1	56
Fourth Medical Year	44	4	48
Postgraduate			
M.Sc. (Med.)	4		4
D.M.R.	4		4
Diploma in Anaesthesia	6	2	8
	308	38	346

A graduating class of forty-eight is a distressingly small fraction of an entering class of sixty-four, carefully selected from a large group of applicants. There are various reasons for the attrition; academic failure, illness, lack of financial support, change of interest. Academic failure varies, partly with the academic tone of the whole class, partly with fluctuating distractions which engage some young people and miss others, partly with the interest or motivation which brings the youth (or maiden) to college and, finally, according to the intellectual gifts or study habits demonstrated in secondary school. I find it hard to predict the progress of students, based on their matriculation record. I have seen a boy with a Grade XIII record of no more than 60 per cent mature into a student who stands in the upper fifth of the graduating class; and one with a matriculation record of 80 per cent graduate at the foot of his class. In the class about to graduate, the average examination performance is just as good among those who entered with a fair matriculation record as among those who entered with an average record exceeding 70 per cent. I am convinced that, for many, motivation becomes clear with maturity; and work habits are correspondingly improved.

Changes in Staff

RETIREMENTS

Few of the teachers of the late 'twenties remain in the medical school. I have to report the retirement, at the end of this term, of two who will be remembered by students of the past thirty years.

Dr JOHN C. W. BROOM came to us in 1927 to teach dental surgery. His contact with any group of students was brief but impressive, and he knew them all. His clinics at the General Hospital on Sunday mornings revealed a warm and effective interest in teaching in one who could not hide his kindliness to patients behind the precision of his technical skill.

Dr JOHN WYLLIE has been the Arthur R. Elliot Professor of Public Health and Preventive Medicine since 1930. Fortunately his own endowments were much more substantial than those which professed to sustain the chair. He came to us from Glasgow, rich in learning in his special field. The thoroughness and breadth of his teaching is indicated by the opinion of those who teach in other centres; it is commonly said that JOHN WYLLIE's undergraduate course is as complete as a graduate course for the D.P.H. His class in parasitology was described by a specialist in the United States as one of the two good courses in the North American continent.

Dr A. F. Baradi came from the United States in 1959 to relieve Dr B. N. Kropp who was on sabbatical leave. He remained at Queen's for the session 1960-1, and now returns to Emory University. He carries with him our gratitude for the brief services of an inspiring teacher and a diligent investigator.

New Appointments

Dr S. L. Fransman was appointed to succeed Dr W. A. Jones as Head of the Department of Radiology and Professor of Radiodiagnosis. He induced Dr D. G. Wollin to come as Assistant Professor. Dr Andrew W. Bruce came in July from London, England, to be Associate Professor and Head of the Department of Urology.

Dr Jean de Margerie, a graduate of Laval University and a Rhodes Scholar, was appointed Assistant Professor of Ophthalmology. Additions to the staff in the Department of Pathology are Dr Daria Haust (Assistant Professor) and Drs T. R. Mabini and R. Ceballos (Lecturers). Dr F. H. Milazzo has come as Assistant Professor of Bacteriology, Drs L. S. Valberg and G. A. Mayer as Lecturers in Medicine, and Dr P. P. Vishwakarma as Lecturer in Pharmacology. Dr P. Christie has returned from Ottawa to teach as Lecturer in Psychiatry.

An honour has come to the University in the appointment of Dr M. W. Partington as first Scientist under the Queen Elizabeth II Canadian Fund. Dr Partington will have the rank of Assistant Professor in Paediatrics and will commence his researches at Queen's in July of this year.

Assistance in Teaching

We have had splendid assistance in clinical teaching from medical officers at the Canadian Forces Hospital, at their own institution and in the city hospitals to which some come regularly. I have, as well, to acknowledge our debt for the willing and expert help which we had from Colonel J. S. Hitsman, who conducted the class in parasitology for three months of an illness of Dr Wyllie. I have learned that Colonel Hitsman is shortly to be transferred to another post; he will be missed by the faculty.

We also had valuable assistance from the Department of National Health and Welfare during the past term. By permission of the Honourable, the Minister, Mr Montieth, and through arrangements made by the Deputy-Minister, Dr G. D. W. Cameron, members of the professional staff of the Department came every week during the period, 15 September to 21 December to lecture to Dr Wyllie's students. This is a kindness which the University will long remember. It also may be an evidence of the high regard in which officials of the Government in Ottawa hold Dr Wyllie.

The Building Programme

The joint programme of the University and the Kingston General Hospital in the expansion of facilities for pathology is progressing favourably. The walls and floors are laid, plans for furniture and equipment have been prepared, and the architects believe that outfitting may be started early in the new year. Certainly the Richardson Laboratory Building should be ready for classes for the session beginning September 1962. When the laboratories for pathology in the Douglas Wing are ready for occupancy, space will be freed in the ground floor of the Angada Hospital for laboratories for research in paediatrics, and for a clinical investigation unit which the General Hospital has undertaken to establish.

The Hotel Dieu has received approval of the Provincial Department of Health for the building it is about to erect; this includes an area which will be used for teaching and research.

I have previously reported on the need of more accommodation for biochemistry and pharmacology and of a medical library. Etherington Hall has already become crowded. I hope that funds may be found soon for the addition of another flat to house laboratories and offices. An expanding research programme in paediatrics calls for more space; it would be appropriate and convenient if this could be provided on the site of the old Doran Wing. We have not sufficient space to house large animals for the research programme in pathology, surgery and obstetrics. A building for this purpose will be necessary very soon, which should be large enough also to house operating rooms, recovery rooms and laboratories.

Teaching at the Ontario Hospital

For many years, it was the custom of the University to appoint, as Professor of Psychiatry, the Superintendent of the Ontario Hospital. Expansion of the hospital increased the administrative duties so greatly during Dr C. H. McCuaig's tenure that he encouraged the appointment of a full-time Professor of Psychiatry. When Professor R. B. Sloane came to the Chair, he was invited to make full use of teaching facilities in the Ontario Hospital. In the meantime, members of the clinical staff of the University had been appointed on an informal basis to act as consultants in their specialties.

During the past year, two conferences were held with Dr M. B. Dymond, Minister of Health, out of which a Joint University-Ontario Hospital Advisory Committee was set up to facilitate the programme of teaching in the medical and surgical specialties. This Committee will submit to the Minister annually a list of consultants who may undertake teaching in their specialties. The Minister, of course, retains the right of appointment.

A more formal arrangement by which certain Ontario hospitals may be recognized as teaching hospitals by the universities of Ontario has been prepared by the professors of psychiatry of the province, with agreement of the Minister of Health. It has not yet been laid before the Board of Trustees of this University.

Visiting Lecturers

Time was when distinguished medical scientists were not drawn to stop at Queen's when passing across the continent, but the research activities of the faculty and the vigorous programme of graduate training has made Kingston such a popular port-of-call that special lecturers speak to students and staff every week during the teaching session. During the fall and winter terms, we were visited by specialists from England, Norway, and Germany, as well as from the United States and Canada. Assistance in support of certain of these lectures has been provided by Merck Sharp and Dohme of Canada Limited.

Changes in Curriculum

In September 1956, the faculty introduced the change in the curriculum by which the six-year course was divided into two years of premedicine and four years of medicine. Weaknesses in the prescription have been revealed, and additions to the teaching staff have made possible re-arrangements which will improve the course. A Curriculum Committee, under the chairmanship of Professor David A. Rosen, has met regularly for the past year to review the programme and to consider recommendations for appropriate changes. It is unlikely that these may be adopted before the fall of 1962.

Research

Our research activity thrives. For every seven dollars provided by the University for salaries and supplies, my colleagues attract six dollars from organizations which support research; this is supplemented by research fellowships. The greatest emphasis is in the cardiovascular field, and involves several departments. Under Dr Sloane, there is a rapidly growing programme in psychiatry in cooperation with the Department of Psychology. In all departments, there is a feeling of compression into narrow space, and a need of more expensive equipment. We now possess to electronmicroscopes, a third is in the Hotel Dieu Hospital, and two more are required in the Department of Pathology. Doubtless these needs will be met, for good work attracts support.

G. H. Ettinger
Dean of the Faculty of Medicine

The Faculty of Law

The outstanding event of this year was the completion and occupation of Sir John A. Macdonald Hall, the new and permanent home of the faculty. In this structure, Queen's University now has one of the finest of modern law school buildings, providing physical facilities for the study of law surpassed by few institutions anywhere.

One of the major tasks involved was the movement of the library collection from temporary quarters in Morris Hall to the new stacks in the library portion of Sir John A. Macdonald Hall. Professor Lawford and Professor Mewett along with the librarians, Mr Wilmot and Mr Hu, spent many weeks planning the move, so that the collection of almost 30,000 volumes could be transferred directly to their proper and permanent places on the shelves according to the scientific system of classification adopted. This was accomplished in about ten days and in time for the opening of the session in the new quarters on 19 September 1960. All parts of the building were finished by 20 October which was a day of important events at Queen's University. At a special Convocation, Dr J. B. Stirling, our new Chancellor, was installed in office, and an honorary degree was conferred on the Prime Minister. Mr Diefenbaker addressed Convocation and then officially opened the new law building which had been named for his illustrious predecessor.

The library was mentioned earlier, and there is more to say. The collection now exceeds 30,000 volumes and ranks among the first half dozen general law libraries in the country. In addition, the international law collection has been developed to the point where it is probably the best in Canada. The library is catalogued, classified and arranged according to the best principles of library science. In this connection, the Faculty of Law owes a great deal to the fine professional skill and systematic perseverence of Mr Blair C. Wilmot, the first law librarian. Mr Wilmot has now taken over the position of head cataloguer of Queen's University's main library, and has been replaced by Mr S. S. Hu, B.A., LL.B., LL.M., B.L.S., who has been assistant law librarian for two years. The new assistant librarian is Miss L. Blackburn, B.A., B.L.S.

Turning now to the teaching staff, the happy report can be given that all members of the staff in 1960-1 will be with us for 1961-2. Seven full-time teachers, with the assistance of three local barristers, are carrying a three-year curriculum of some twenty-eight classes. This means heavy teaching loads and indicates that an increase in the size of the full-time faculty will be essential very soon.

Enrolment of students is slowly rising. In 1960-1, Queen's Law Faculty had a total of 63 students in the three years of the course. Slightly more than two thirds of the students come from Ontario, with all sections of the province represented. The second largest group is from Quebec, and the others come from Alberta, Saskatchewan, Manitoba, Newfoundland and the British West Indies. Seventeen students graduated this year, our second graduating class. Finally, it should be noted that our first graduates (those of 1960) enter the final phase of the Bar Admission Course of the Law Society of Upper Canada in September of this year and look forward to admission as barristers and solicitors by March of 1962.

W. R. Lederman
Dean of the Faculty of Law

The School of Business

The activities of the School of Business expanded somewhat during the year on every front, including the undergraduate commerce course, the graduate business administration course, the extramural professional courses, and the executive programme. The most significant development in the past year has been the inauguration of the two-year course leading to the degree of Master of Business Administration. The first class of graduate students entered this course in September 1960 with seventeen members. Members of the class are graduates of eleven different universities, with six graduates from Queen's, two from the University of Manitoba, and one each from Acadia, Alberta, Assumption, British Columbia, Laval, McGill, St Francis Xavier, St Mary's, and Witwatersrand. Ten have degrees in Science, five in Arts, and two in Commerce. The faculty is gratified with the varied backgrounds and with the generally high quality of the students, and with the enthusiasm and application shown by the first class in participating in the task of making this course an assured success. Academic results have been excellent, with eleven students obtaining first or second-class honours in the year's work.

The courses of the second year of the graduate programme in business administration will be offered for the first time in the session of 1961-2 and, with an increased enrolment in the first year, some thirty-five or more students will be enrolled in the two years of the M.B.A. course.

In the undergraduate Commerce course, the senior classes are at their lowest registration since the war, as a result of the small freshmen registrations of the late 'fifties. First-year registrations in Commerce showed a satisfactory increase in 1960, and early applications indicate a larger increase in the fall of 1961. The numbers graduating in Commerce will remain at about the present level in 1961-2, but can be expected to increase thereafter. The School of Business can contemplate an ultimate doubling of this year's undergraduate registrations with equanimity.

Professional Courses

The number of students fully registered in the professional institute and association courses rose to 4,068. Of these, 1,886 are registered in the Chartered Accountants Course of Instruction (an increase of 6), 1,823 are registered in the Fellows Course in Banking (an increase of 398), and 359 are registered in the courses for the Canadian Association of Trust Companies (an increase of 37). In addition to the students registered for full course work, 313 students are registered in the institute and association courses for special or partial work. These figures give some indication of the volume of work involved in administering and providing instruction in these courses. The School has been fortunate in the appointment of Major HERBERT BROWN as general office manager, Miss ALISON MACKINTOSH as supervising instructor in the professional courses, and Major RALPH MAYBEE as assistant office manager.

The Executive Programme

Four conferences and short courses were presented in the Executive Programme during the past year, bringing 170 participants to the campus from business and other management fields. Forty-five financial officers attended the Income Tax Seminar on 25-7 May 1960; 34 representatives of companies and other organizations participated in the 'Perspective for Management 1960' conference on 30 May - 2 June; and the registration for the Winter Evening Programme for Executives, conducted by Dr BARRETT, was sixty-five. The Executive Summer School, a new three-week executive development course offered in July, was specially commended by the 26 participants as a worthy and notable addition to the Executive Programme.

The faculty for the Income Tax Seminar included Messrs M. Belanger, E. J. Benson, H. E. Crate, J. W. Graham, L. F. Heyding, K. W. Lemon, W. G. Leonard, J. G. McEntyre, J. H. Perry, H. I. Ross and L. J. Smith.

Principal speakers at 'Perspective for Management 1960' were Messrs A. R. C. Duncan, R. T. Forrest, B. J. Muller-Thym, R. Presgrave, L. Sayles, E. Schell, J. H. Smith, A. Winn, and Dr D. C. Bews.

Faculty members and special speakers for the Executive Summer School were F. D. Barrett, E. J. Benson, E. B. Chown, C. H. Curtis, D. D. Monieson, R. Presgrave, J. A. Sargeant, J. C. Sawatsky, D. Slater and J. M. Thompson.

Advisory Council

The Advisory Council of the School of Business provides a link between the School and the business community, and a form for consideration of problems and policies. Council members, individually and as a group, have rendered special service on many occasions during the past year.

Groups of Advisory Council members met on different occasions in Toronto and Montreal, and the Council met as a whole in Dunning Hall on 12 December under the chairmanship of Mr W. L. L. McDonald. Major considerations at these meetings were the problem of adequate financial assistance for graduate students of business administration and the appropriate means of bringing the work of the School, and especially the Executive Programme, to the attention of a wider public.

The present membership of the Advisory Council is as follows: John Macdonald (chairman), Chairman of the Board of Johnson & Johnson Limited; R. D. Armstrong, Vice-President, Chrysler Corporation of Canada Limited; O. H. Barrett, President, Zinc Oxide Company of Canada and Durham Industries (Canada) Limited; Wesley F. Cook, Vice-President, Kimberley Clark Canada Limited; A. J. Frost, Bolton, Tremblay & Company; W. L. L. McDonald, Price Waterhouse & Company; W. Wallace Muir, W. Wallace Muir and Associates; W. H. Poole, Vice-President, Young & Rubicam Limited; Morgan Reid, General Manager, Planning and Public Relations, Simpson-Sears Limited; HOWARD I. ROSS, Touche, Ross, Bailey & Smart; A. M. SANDERSON, President, Whitehall Laboratories Limited; W. D. SMALL, Superintendent, Securities Department, Bank of Montreal.

Some Special Activities

Professor GALVIN organized a two-day 'Commerce Conference' for senior undergraduate students. The programme included industrial plant tours, lectures by visiting speakers including Messrs G. CLEMENT, R. F. COLLINS, R. PHILLIPS and W. H. POOLE, and a day in the business decision laboratory at the University's electronic Computing Centre.

Professors HAND and DIXON arranged the programme for a two-day visit of the graduate students in Montreal where the students were addressed by a number of business executives and had lively discussions with them, and also took part in a day of computer business games organized by the International Business Machines Company. On other occasions during the year, the graduate students visited the plants of General Motors Corporation in Oshawa, the Aluminum Company of Canada Limited and Vicom Limited in Kingston.

Mr A. W. BALSON, superintendent of industrial engineering in the Kingston Works of the Aluminum Company of Canada, gave a series of four lectures in industrial engineering in the graduate course in production management.

Other visiting speakers during the session included Professor GORDON DONALDSON (Harvard University), Professor JOHN BISHOP (Harvard University), W. WALLACE MUIR, M. WILLIAMSON (Aluminum Company of Canada), ARTHUR SMITH (Canadian-American Committee), D. C. TENNANT (Trans Canada Airlines), and G. MILLING (Ontario Federation of Labour).

The School of Business was associated with meetings, on the campus, of the Association of Canadian Schools of Commerce and Business Administration on 12-13 June 1960, the executive committee of that Association on 7 January 1961, the Conference of the Institute of Chartered Accountants of Ontario on 20-21 June 1960, and the Education and Editorial Committees of the Canadian Bankers Association on 4 November 1960.

Publications during the year by members of the faculty included two books, *Theory and Practice of Canadian Accounting* by Professor LEONARD (with Professor F. N. BEARD, University of Toronto), and

Price Discrimination and Marketing Management (Michigan Business Studies, vol XV, no 1) by Professor Dixon, as well as several articles on business subjects. Faculty members have a number of research and writing projects under way in the fields of marketing, finance, accounting, business law and statistical analysis.

The University's electronic computer has been used on several occasions by staff members and students. We wish to acknowledge our appreciation of the cooperation of the director of the Computing Centre, Dr J. A. N. Lee, in all of the arrangements for use of the Centre in research projects and as a business decisions laboratory where management simulation techniques bearing the misnomer of 'business games' are being tried out as teaching and learning devices.

L. G. Macpherson
Director of the School of Business

The School of Nursing

The composition of the student group is as follows:

	1960-1		*1959-60*	
First Year	29	(7 graduate nurses)	23	(2)
	4	(part-time students)	2	
Second Year	20		19	
Third Year	18		14	
Fourth Year	13		19	
Fifth Year	21		21	
Diploma	8		9	
	109 plus 4 part-time		105 plus 2 part-time	

The move to new quarters for the School took place in July. This move has proven to be very beneficial in many ways. A reading room has been established which houses reference books, periodicals and provides a quiet place for study. It has been shown that use of the nursing library books has increased markedly and there has been no falling off in the use our students are making of the medical library and Douglas Library. Teaching has been improved by having a small classroom available and having space where staff can meet easily with individual students or groups of students. Students are enjoying the sense of identity which the new quarters has given them. Staff are finding opportunities for study increased by availability of time and reference material. As the staff and students have used these new quarters, improvements for the future are already becoming evident. For example, demonstration equipment is to be provided this year for teaching first-year students; increased well-planned space will be necessary if we are to continue improving the programme.

In December, a proposed curriculum for an improved undergraduate course was presented to the Advisory Committee. This was an exploratory meeting to obtain reactions to such a change. The staff felt such a presentation was necessary to let the Committee know something of the study being done by the staff. Research is continuing into the clinical facilities available for our students in Kingston. At the present time, about fifty per cent of our students receive the clinical portion of their course in Kingston; the rest are in Montreal, Toronto, or Ottawa. If we change our course and teach the whole course in Kingston, what is involved? Can Kingston hospitals provide the clinical experience? How many clinical teachers will be necessary on the University staff? In the area of clinical facilities, we offered an opportunity to the head nurses of the three local teaching hospitals to attend a series of lectures on supervision. In response to this offer, over thirty head nurses attended the series and are asking for more help for themselves and their assistants.

The research and assistance possible is limited by the number of the School of Nursing staff. Miss MOULTON and the Director discussed what should be requested in this area. It was decided that for next year, rather than ask for three full-time members of faculty, we would continue with two full-time teachers and a part-time lecturer and, in addition, a demonstrator. This plan will be tried because it will make further study in the clinical area possible. If the number of students should increase in first year, as seems imminent, we will not be able to continue without more full-time staff.

Mrs EVLYN DALMAN has been a valuable member of staff. Although employed as a part-time staff member, she has been far more than this. We will miss her. She has been offered an assistantship where she can complete her Master's degree.

This has been an interesting year. There is a feeling of great vitality in the School. Public interest is great. As president of the Canadian Conference of University Schools of Nursing, the Director finds this vitality is being felt at universities across Canada.

JENNY M. WEIR
Director of the School of Nursing

The Dean of Women

I have to report that, during the session 1960-1, the greater part of my work has been with the administration of the women's residences and with the students who live in them. For the first time in some years, all first-year women, other than Kingston residents, coming directly from Grade XIII (or its equivalent) were able to live in residence, as the University prefers that they should. This was possible with the completion and opening of Chown Hall, the newest of our women's residences, which provided additional accommodation for 165 students, bringing the total residence capacity for women to 435. There were in the residences 275 first-year women—

208	registered in the Faculty of Arts and Science
8	in First Premedical Year
24	in Arts and Physical and Health Education
1	in the Faculty of Applied Science
3	in the School of Business
31	in Nursing Science

This number represents a 30 per cent increase over the registration of the previous year. If the increase continues in the same percentage ratio, it will require a considerable reduction in the number of sophomores and seniors who can be admitted to residence. At present, students are admitted for a second year, on the basis of academic standing. In 1960-1 there were also, living in, *160* senior students, including 16 who had transferred from other universities and 5 graduate students. In re-admitting for the coming year, I have reduced this number to *120*, hoping that I have allowed adequately for the increase in first-year registration, without seriously affecting the ratio of senior to freshette. The present system of student government requires

55	selected Proctors (usually sophomores)
4	elected executive members of House Council
9	senior-student Wardens
1	President of the Levana Society, and
1	other executive member
1	resident Nurse

It is still possible, within the given number of *120* to admit some 50 second and third-year students who offer to the residences an example of maturity and scholarship, so necessary, I believe, in establishing the right traditions of residence living.

Rates were increased for the session, as follows:

1959-60		*1960-1*	
Single Room and Board	$510	Single Room and Board	$550
Double Room and Board	490	Double Room and Board	525

The rates will be increased again in 1961-2 to $600 and $576, respectively. These costs compare favourably with charges for lodgings and meals in the city. There is, at the time of writing this report, in addition to the 120 seniors and sophomores already admitted, a *waiting list* of 150 students who have lived in residence during their first year and who have applied for a second term.

The addition to the dining room, undertaken during the summer of 1960, was not completed until October, and took the greater part of the months until Christmas before it was in satisfactory operation. It was not possible to serve meals during the May and June conferences and Summer School in July and August. This represents a considerable financial loss. However, we had several conferences living, if not eating, in our residences. In May, delegates representing the United Church Young People, the High School Guidance Teachers, Medical Officers of Health, and Industrial Relations Courses, lived in the women's residences during the time of the various meetings. Adelaide Hall and Chown Hall were fully occupied during the meeting of the Learned Societies, 5-17 June. The United Nations Seminar of High School Students met later in the same month. In September we had some of the Nuclear Physicists in Chown Hall, the Reinforced Concrete Construction group, and the Liberal Association.

The women's residences opened on Sunday, 3 July, to admit 327 students registered in Summer School. Chown, Adelaide and Ban Righ Halls were filled to capacity, without having to open any of the annex houses. You may be interested in the numbers of each course that were accommodated in the residences:

Reg. Summer School students working towards degree	141
School of English	63
Physical and Health Education	43
School of Ballet	31
O C E Summer Course	27
Fine Arts Courses	22

The residences also accommodated four or five teachers on a Department of Education course at Q E C V I, as well as two young students attending the special school at K C V I. In this way, both Chown and Adelaide Halls were filled to capacity during the first five weeks of Summer School. Ban Righ housed the ballet group and the women on two-week courses in Fine Arts. Residence facilities were considered adequate and no applicant was turned away. Baker and Goodwin Houses were rented for two months to members of the Canadian Mathematical Congress. Arrangements were made for catering to the women students and staff during the week days of Summer School, at the Students' Memorial Union, and at Leonard Hall at the week-ends. Although these expedients had seemed irksome when contemplated, the system worked tolerably well and was accepted with apparent good-will by the students.

My association with the first-year women students of the 1960-1 session began with orientation week, when I had an opportunity to speak to all of them in Dunning Hall auditorium. This is a good beginning for the programme of individual contact which I try to follow. It is my desire to know the students, personally, in their academic and social life, and to offer what I can of advice and understanding in their problems of adjustment to new conditions of living and learning. Welcoming procedures and initiation were well organized by the Sophomore Committees in charge; they passed rather peacefully into the hectic football season, and eventually reached the sobering atmosphere of the November tests.

The integration of Chown Hall, within the whole residence group, was an important consideration throughout the year. Much of its successful operation, I attribute to the three wardens who represented the senior-student authority, and who worked closely with me, with the House Manager, and with the Proctors, in establishing house rules and regulations, and in promoting the sense of unity that now links Chown with Adelaide and Ban Righ Halls and the annex houses. Chown Hall fulfils all expectations in being a carefully-planned modern residence. Its study rooms, library, recreation room and common rooms are always in use. The Board Room is used for the regular weekly meetings of the Levana Society and the House Council and for the quarterly meetings of the Ban Righ Board. Several student-bedrooms, the library and the foyer carry inscribed plaques indicating the financial contributions to their furnishings from Queen's University Alumnae branches. The new television set in the North Common Room is the gift of the late Mr DOUGLAS CHOWN. The name itself is a tribute to the CHOWN family, who has been actively connected with this University, and to Miss MAY CHOWN (who died in January 1961) who was a treasurer of the Ban Righ Board, and who always evinced a warm, personal interest in the women students of Queen's. The common rooms of

Chown Hall, and the new common room in Ban Righ, provided by the changes made in the dining-room area, have proved a useful addition for student gatherings this year. Discussion study groups have been held regularly in mathematics, philosophy, psychology, biology, and English, under my own and student leadership. This is a feature of the academic possibilities of the residence that I should like to extend.

The opening of a new residence and a new dining room, and the unionization of kitchen, cafeteria and maintenance staff, presented some problems of administration and labour relations. Also, there are staff replacements that will require careful consideration before the opening of the 1961-2 session. Mrs E. CANTELO, who has been the secretary of the residences for twenty years, will retire in August. Her devotion to her duties and her personal influence among the students will be a great loss to Ban Righ. Mrs A. HANCOCK, night warden in Adelaide Hall for ten years, retired as of 1 May. Mrs MCQUEEN's decision to return to England left vacant her position as treasurer of the Ban Righ Board. Mr R. H. CRANDALL, Financial Supervisor of the University, has replaced her, by appointment. The present House Manager of Adelaide Hall, Mrs E. EISENHAUER, is leaving at the end of August.

I am aware that 435 young women in residence are only half the total registration of women in the University this year. My contacts with the large numbers living 'out' are not as well organized as they should be, but, having had all first-year women living in the residences, it should be easier, during the coming winter session, to keep in close touch and watch their progress through their University courses.

There are, of course, a hundred 'boarders', who arrange for regular meals at Ban Righ and who are an integral part of the residence group. My association with the Levana Society allows me an active participation in their projects, planned in the interests of Queen's women. It has been a distinct pleasure to work this year with the President, Miss DAWN CAMPBELL, and her executive. Miss CAMPBELL is one of six women among the fourteen students considered for the Prince of Wales Prize awarded to the graduating student in the Faculty of Arts and Science, who is adjudged to have the best academic record at Queen's. This is indication, I think, of the general integrity of scholarship maintained by our women students. An impressive number come from the high schools and enter the University on scholarships and bursaries. Many continue their fine records, receiving prizes and medals in their various departments. This year, several will proceed to graduate study here at Queen's, in Europe and the United States.

Much is being said and written today on the subject of the changing concept of the university in a changing world, with clinical treatises on the special problems and pressures of college girls whose numbers in the universities are increasing rapidly every year. I recognize the problems, but there are relatively few who back away from their responsibilities and who develop psycho-somatic pains and aches, compulsive eating and sleeping habits and records of failure. I find them a pretty healthy, intelligent lot, prepared to work out for themselves excellent standards of behaviour in a society that is changing in the opportunity and freedom that it offers to women today.

B. E. Bryce
Dean of Women

The Summer School 1960

Figures for the last seven years in Summer School are:

1954	1955	1956	1957	1958	1959	1960
413	451	530	750	919	1000	1075

The actual increase was about the same as the previous year but the percentage increase was slightly less and considerably less than two or three years ago. This would indicate a possible levelling off in the enrolment in Summer School which has undergone such a rapid change in the last seven years.

The School of Fine Arts enrolment showed an increase over the previous year. No new classes were offered but all the art classes had maximum registration. It is unfortunate that our facilities are so limited as we could have many more students in all of the painting classes.

In addition to the regular students, there were a number taking Ontario Department of Education courses. In the Physical Education Course for Secondary School Women Teachers, there were 53 registrants. A division of the Ontario College of Education training course for Secondary School Teachers was offered in Kingston for the first time. Facilities were provided for the students in University residences and classrooms although the course was conducted by staff members of the Ontario Department of Education. There were 192 persons registered in the first year of the course. It is expected that most of these will return in the summer of 1961 for the second year of the course which will be presented here as well as the first year. It was a pleasure to have these teachers on the campus and it provides a further liaison between the University and the high school teachers.

The International Nickel Company continued its generous grant to enable high school teachers of science and mathematics to take further courses to improve their qualifications. Bursaries were awarded to fifty successful candidates who registered in courses in biology, chemistry and mathematics.

The summer of 1960 marked the 50th anniversary of the establishment of the Queen's University Summer School and a series of special events celebrated this occasion. A brief listing will indicate the range of the events. It was particularly gratifying to have a large number of graduates of Summer School and extramural work return for the week-end.

On Friday, 8 July, the activities began with a general reception for all returning alumni. This was held in Leonard Hall with the Queen's Summer School Association as hosts.

Following the reception, there was the formal opening of a special Art Exhibition at the Agnes Etherington Art Centre. Later in the evening, there was a Summer School dance at the Queen's gymnasium.

On Saturday, the highlight of the week-end was the first Summer Convocation held during the fifty years' history of the Summer School. The recipients of the honorary degrees were all Queen's Summer School graduates: Dean D. C. DILTZ of the Ontario College of Education; Mr ZAC C. PHIMISTER, Superintendent of Education, City of Toronto; Mr ALBERT E. O'NEILL of Oshawa. Dr PHIMISTER delivered the Convocation address.

During the afternoon, there were conducted tours of the new buildings as well as a special seminar in the Dunning Hall auditorium on 'State Controls — A Threat to Democracy'. Dean DUNCAN acted as chairman of the panel with Professors CRAWFORD, RYAN and KEPPEL-JONES as discussants.

A banquet was held in Leonard Hall that evening at which Dr J. J. DEUTSCH, Vice-Principal (Administration), gave a history of the Summer School. A play was presented in Convocation Hall under the direction of Dr WILLIAM ANGUS. Later that evening, an open air dance was held at Leonard Hall.

The activities of the week-end terminated with a church service on Sunday morning in the Dunning Hall auditorium. This was conducted by the University Chaplain, the Reverend A. M. Laverty.

There is an increasing number of high school teachers taking courses, both extramurally and in Summer School, to improve their qualifications for endorsation or Type A Specialists Certification. We now offer a regular series of honours courses in several subjects including biology, English, history, geography, Latin and mathematics, which may be taken in Summer School. It would be well to increase these offerings and to announce them early in our schedule of proposed courses so that teachers can plan a programme of studies.

Bermuda Summer School

In cooperation with the Bermuda Department of Education, two credit courses were offered: French, by Dr W. H. EVANS and English 3 by Dr ALEC LUCAS. There was a fair registration in these courses and the results were satisfactory.

In addition, two instructors, Dr G. A. HARROWER of the Physics Department and Mr CHARLES WALLACE, Head of the Science Department of the Collins Bay Collegiate, were appointed to give special courses in the teaching of science subjects. The number of high school teachers taking these classes was disappointing, but the instructors were complimented on their work.

School of English

This School continues to progress. Each year our fame is growing and while we do less advertising, we receive more applications and it is necessary to refuse a large number of would-be students. The language laboratory facilities accommodate only 100 students and thus the number has to be restricted to one hundred. It was most unfortunate that Dr G. SHORTLIFFE, Director of the School of English, was taken ill during the summer session. He has given dynamic leadership to this School and it is regrettable that he will be unable to continue as Director. Mr RAE STUART, the Assistant Director, and members of staff were able to carry on very satisfactorily for the remainder of the session.

The Queen's Summer School Association Executive worked very hard on the Anniversary celebration and its success was due in a large part to this help. They must be congratulated on the programme for the regular Summer School. The donation of $2,500 to the Queen's

Summer School Association Prize Fund brought the Capital Fund up to where it is self sustaining. Another bursary was added to the three already offered.

H. W. CURRAN
Director of the Summer School

The Board of Graduate Studies

I have the honour to present the report of the Board of Graduate Studies for the academic session 1960-1. The registration in graduate studies has practically doubled over the past three years going from 113 in 1957 to 219 in the current session. This increase is more than would be expected from the modest percentage increase in undergraduate enrolment in Canada in the middle 1950's. Furthermore, it cannot be attributed to a greatly increased registration of foreign students. Rather, it is a reflection of heightened interest in scholarly research in all fields, but particularly in the sciences, both basic and applied.

Many applications for graduate work for the year 1961-2 already have been considered. Of 232 students who have applied to date, 159 were accepted with or without qualification, 23 withdrew their application, and fifty were refused either at the departmental level or by the Board of Graduate Studies. These figures indicate that the Board has exercised a fair degree of selectivity in considering the applications for graduate work. Although this selection of candidates is highly desirable in the development of a first-class school of graduate studies, none the less concern has been expressed that foreign students from relatively under-developed countries comprise a large proportion of the group whose applications were refused. It has been suggested that we could do more in the training of these students even if they did not meet our standards for admission to graduate work. It would be difficult and indeed probably undesirable to attempt to draw up any general regulation to implement this point of view since the training and background of these candidates is so varied. This is a problem that each department must decide for itself and any decision reached must of necessity depend upon undergraduate and graduate teaching commitments together with the amount of money available for the support of these graduate students.

The practice of providing financial support for graduate students has been firmly established for a good many years — at least in the science departments — and the task of obtaining funds for research, although more readily met than in the past, is one that must always be considered. The fact that, through the efforts of individual faculty members, more than $1,350,000 has been obtained in the form of grants in aid of research for 1961-2 is a measure of the esteem held for their work by fund-granting organizations. What is perhaps not realized by many, however, is the cost imposed on the university by the administration of these funds. Although estimates are not as yet available for this University, other institutions (United States) have found administrative costs to range from 10-35 per cent. The University thus makes a considerable contribution to research work and hence to graduate studies amounting to between $135,000 and $473,000. Unfortunately this contribution is not readily apparent. What is known, however, is that the University has for distribution only a little over $20,000 per annum in aid of research in the sciences and $7,500 for the humanities and social sciences. These amounts, especially when viewed in the light of the funds obtained by the individual faculty members, appear to be rather insignificant. There can be no doubt that research work and hence graduate studies would be greatly facilitated by additional funds being made available, possibly in the form of departmental fellowships which could be awarded solely on the recommendation of the department. This would be of great value in enabling supervisors to make a firm offer of financial assistance in those cases where a quick decision is required or desirable.

During the current academic session, all phases of graduate study have been critically examined by a committee comprised of H. G. Conn, C. A. Curtis, A. R. C. Duncan, G. H. Ettinger, G. A. Harrower, J. K. N. Jones, Miss Jean Royce and the chairman of the Board. To date, the committee has met on eleven occasions, each meeting lasting for about two hours. Members of the Board, heads of departments, supervisors and those involved in teaching graduate students were invited to outline their views on graduate studies and an excellent response was obtained. The opinions were many and diverse, being diametrically opposed on a number of points. A similar situation emerged during the discussions of the committee. It soon became apparent that due to the differing requirements and practices of the departments, any revised set of general regulations applicable to all departments would have to be extremely limited. The chairman is drafting a final report for consideration by the committee before submission to the Board for study and approval.

During this first year as chairman, I have tried to attend as many as possible of the thesis and comprehensive oral examinations in order to obtain a better grasp of the scope of graduate studies. I have learned a great deal and have come to know and appreciate the efforts of those who are actively engaged in this work. However, if Queen's is to increase in stature and reputation as a University, more departments and faculty members must devote additional time and energy to the field of graduate study. This is not to say that there should be an indiscriminate expansion. There is obviously a limit to the number of graduate students that can be directed adequately by a faculty member and this can be determined only in the light of other commitments. There is no more important function for a truly first-rate university and the Board looks to a steady increase in graduate work up to the capacity of our staff and facilities to do this effectively.

Finally, it is difficult to see how the Board of Graduate Studies can avoid considering such questions as the ratio of staff to students and the teaching loads of our staff members. The performance of scholarly research and the proper direction of graduate students take a great deal of time and effort and it seems scarcely necessary to say that unless adequate allowance is made for this in assigning instruction duties, it will be difficult to recruit and keep staff of the required calibre to promote the graduate programme in the way we would like to see it develop at Queen's University.

J. M. R. Beveridge
Chairman

The Department of Extension

The total number of persons registered for one or more courses, either as credit or non-credit students, was 3,836 during the past academic year. This figure is 264 greater than the previous year's registration but does not indicate fully the great increase in credit extramural courses as there was some decline in the non-credit registrations. The professional development programme of business administration courses has now been taken over by the School of Business and is not included in our figures. Also much more attention is being directed to the development of credit courses taken by correspondence as this department now offers fifty regular academic courses from twelve different departments of the Faculty of Arts and Science.

There was a total of 1,691 students in the extramural credit courses in the winter session of 1960-1 and most of these will continue with other subjects in the summer. Of this number, 994 were men and 679 were women which is a reversal of the situation some years ago when there were more women than men registered in our courses both extramurally and in Summer School. This is the largest registration ever attained in the long history of the Department of Extension. For the decade from 1946 to 1956, the winter extramural registration remained rather constant with approximately 700 persons but in the last seven years, the total registration has more than doubled in these courses with an increase of precisely 1,000 persons in the last six years as the following figures will show.

1954-5	1955-6	1956-7	1957-8	1958-9	1959-60	1960-1
649	691	832	967	1,288	1,397	1,691

The increase of nearly 300 students in the last year is partially accounted for by a large enrolment of persons living in the Province of Newfoundland. A special relationship was established with Memorial University at St John's whereby students who had taken one or more years at that institution might be permitted to undertake some extramural courses with Queen's University.

We are most appreciative of the efforts of Mr S. J. COLMAN, Director of Extension at Memorial University, who has worked very closely with us on this arrangement. Rather than set up a separate correspondence division, Queen's University was selected as the institution at which Memorial students could enrol for extramural work, if they were unable to attend classes on the campus.

In non-academic courses, our largest registration continues to be with the three-year certificate courses in Municipal Assessment, with 203 registrations and the Municipal Clerks' and Finance Officers' Training course with 267 registrations. It is to be expected that there will be some decline in these numbers as more and more of the registrants complete the requirements. These courses serve a very useful function in providing excellent training for municipal officers which is not available from any other source.

Extension tutorial classes were again presented in a number of centres in eastern Ontario. These were of assistance to extramural students and in particular to students starting university work. The department is most grateful to the members of staff who regularly travelled every other week to outside places. Letters of appreciation were received from a number of students and it is felt this work is good publicity for Queen's in these areas.

The following courses were presented in the different centres: Religion 5 by Dr E. ANDREWS in Belleville; Psychology 4 by Mr J. J. COTÉ and members of the Psychology Department in Brockville and Oshawa; History 2 by Dr W. E. L. SMITH in Kingston; Politics 2 by Mr J. GUNN in Oshawa; Psychology 3 by Professor ISABEL LAIRD in Peterborough and English 2 by Professor D. CRAWLEY in Port Hope. It was felt that the latter class was particularly successful as it had been asked for and promoted by a citizens' committee in Port Hope.

A series of night lectures in Kingston were held on typography given by Professor GEORGE WHALLEY and a series on Russian history by Professor R. A. PIERCE.

The usual art lectures at the Agnes Etherington Art Centre were completely subscribed. The instructors were Professor ANDRÉ BIÉLER and Mr RALPH ALLEN.

Requests are received from time to time for additional night courses but our efforts have not been successful in arranging with instructors to give the courses.

Advertising is provided by this department for special lectures, including the annual Public Lectures and the Chancellor Dunning Trust Lectures.

During the summer of 1960, many conferences and meetings of various groups were held on the campus. The largest series of these were the annual meetings of the Learned Societies of Canada which met from 2-17 June with 27 different associations and a total registration of out of town delegates of 2,650 persons during that period. In addition, there were nine conferences in May, three others in June and seven in the latter part of August and early September. The aggregate registration for conferences other than the Learned Societies was 2,780 persons. Some of the larger groups were the United Church of Canada, International Nuclear Physicists, Guidance Teachers of Ontario and New York, Ontario Electrical Utilities and the Canadian Textile Seminar. With the fine residential accommodation and the excellent dining hall facilities that are now available on the campus, it is likely that there will be continued requests from numerous organizations to hold their meetings in Kingston.

The steadily increasing work of this department in all of its multiple activities is ably managed by the cooperative efforts of an efficient and loyal office staff headed by Miss MARY ANDREWS. This year, Miss JEAN MCGAUGHEY joined the staff as an Assistant Director and has proven invaluable in many ways but especially in making arrangements for conferences, meetings and booking of accommodation. Miss KATHLEEN HEALEY has been an Assistant Director for a number of years and cheerfully undertakes many of the responsibilities and duties of the department.

H. W. CURRAN
Director of Extension

The Librarian

I have the honour to present the following report on the work of the library for the session 1960-1:

In service to students and faculty and in growth of the book collection, 1960-1 has been a record year for the Douglas Library. The circulation of books and periodicals increased each month to a total of 85,218 compared with 78,209 a year ago. This includes books and journals signed out from the main library, the faculty and department libraries, but does not take into account the larger number of books and periodicals used in these libraries. Statistics from the Order Office and Cataloguing Department have broken all previous records. The number of new book titles ordered rose from 6,679 in 1959-60 to 7,597 during the past year. Accessions increased from 7,005 to 11,843; volumes catalogued from 3,679 to 7,886.

An appreciable increase in the library book budget made this expansion possible. As the library staff was not proportionately increased in numbers, the processing of so many more volumes than normally received made heavy demands on the order librarians and cataloguers who came early and stayed late to keep their desks cleared. Enlargement of the staff for technical services next year promises much-needed relief.

The Law Library

The highlight of the year's activity was the official opening by the Prime Minister, 20 October, of the law library in Sir John A. Macdonald Hall, and the unveiling of a portrait of the late Honourable W. F. Nickle, the gift of whose extensive law collection formed the nucleus of our present law library. We now have one of the finest collections of its kind in Canada. In the field of international law, it is second to none.

The arduous task of moving some 30,000 volumes from Morris Hall basement to the new building was executed with dispatch by a team of law students supervised by the law librarians and the library committee of the Faculty of Law. This testifies to the excellent relations between the library and the faculty. The peculiar needs and problems of a law library have tended in many institutions to divorce it from the main library. I am happy to report that this has been avoided at Queen's through the good will of the Law Faculty and harmonious cooperation with the library administration.

The Government Documents collection, which occupied three levels of the 'south tower' stacks in the Douglas Library, was moved during the first term to the large, well-lighted basement stack area in the law library. An office has been provided for the documents librarian, and there are sixteen study carrels for readers. The space formerly occupied by documents in the Douglas Library will be used to store unbound periodicals.

Medical Library

In contrast to the excellent accommodation provided for the law collection, the medical library, with approximately the same number of holdings, faces a chronic problem of over-crowding and congestion. Books and journal files are dispersed among eight or ten relatively small rooms in the central block of Summerhill. The main stacks are in three cellar rooms and a connecting passage. As an emergency measure this year, the former kitchen was fitted with stacks, now almost completely filled with bound journals. A room on the second floor has also been commandeered for storing unbound periodicals. There is no book lift, and no possibility of central control of exits from the librarian's desk. The problem is the more serious in view of an expanding programme of medical research with increasing demands on library resources and library service.

Department and Deposit Libraries

There are at present twelve department and eight deposit libraries. The former are self-contained units each with a threefold card catalogue which indexes holdings under author, title, and subject. Deposit libraries are smaller collections normally signed out to the department to serve as 'reserved books' for specific courses.

Traditionally, library administrators have resisted decentralization of library holdings, but for larger libraries there has been a change of thinking in this respect. As academic libraries have been doubling in size every sixteen to twenty years, the growth factor alone makes a degree of decentralization necessary. There should, however, be an over-all policy with respect to the size and growth of satellite libraries. A sub-committee of the Board of Library Curators has made a survey of all outlying libraries on the campus as a basis for reviewing our present policy and making recommendations for the general expansion of library facilities. One possibility to be considered is provision of a medico-science library, reserving the Douglas Library for the humanities and social sciences.

Alterations in the Douglas Library

Additional steel shelves were installed in the basement stacks to provide better storage for bound newspaper volumes. The Order Office was enlarged to include the space formerly occupied by the chief librarian's office. This was made possible by the transfer of the government documents department to the law library which released the documents' study as a new office for the Librarian.

Douglas Library Notes

Beginning with volume X (Spring, 1961) *Douglas Library Notes* will appear quarterly as an eight-page bulletin for free distribution. It will no longer be included as a supplement to the *Queen's Review.*

Exhibits

Several special exhibits were arranged during the year and attracted much interest. These included 'Some landmarks in the history of science', a display of publications by local history societies, private press imprints and limited editions from the Elizabeth Gray Collection, Jewish literature, holograph letters of Canadian Prime Ministers (to mark the opening of the twenty-fourth Parliament), the manuscript journals of Chief Justice William Smith for the years 1784-6, and a display of pamphlets, posters, and other items to mark the independence of Sierra Leone. Much material for the latter was provided by the United Kingdom Information Office in Toronto.

Gifts

Mr Avery Dunning has added to the Honourable C. A. Dunning Papers a large number of letters, memoranda and other records of his late father.

Senator C. G. Power presented an extensive collection of mounted newspaper clippings on Canadian political subjects prepared originally for Mr Mackenzie King.

Dr Lorne Pierce has continued to send, for the Edith and Lorne Pierce Collection, many books, pamphlets, journals, manuscripts, typescripts of Canadian authors, and original letters, including a series of letters of Sir Gilbert Parker.

Susan, Lady Tweedsmuir presented additional manuscripts of her late husband for the John Buchan Collection, including eight holograph letters to Lord Tweedsmuir from Lawrence of Arabia.

Other holograph letters of C. E. Montague, Norman Douglas, Arthur Symons, Florence Nightingale and Sylvia Cowles were donated by Dr J. A. Gray and Mrs Gray — these, in addition to a fine collection of some 500 books, previously reported.

Mr C. A. Henry of California sent us a collection of about 200 volumes on Russia before and after the Revolution. Twenty books on the Ukraine were presented by the Ukrainian community of Kingston.

Mr Brockington has continued to make gifts himself and beget gifts from others, including inscribed, autographed copies of their latest books by Sir Alan Herbert, Lord Ismay and Lovat Dickson.

Mr Arthur Davies presented, on behalf of the *Whig-Standard,* a set of large photographs of Kingston limestone houses and buildings of historic interest.

From the estate of the late Dr P. G. C. Campbell we received a large number of volumes, chiefly texts and critical volumes in French, German, and classical literature.

A first-year student, Miss Myra Kelly, presented two framed wood-cut block prints from a fifteenth century block book, interesting examples of printing before the use of moveable type.

Dr A. R. M. Lower made additions to the typescripts of his own works now deposited in the library, and donated many offprints, pamphlets and other ephemera relating to Canadian history and politics.

Dr B. R. MacKay of Ottawa presented some early issues of the *Montreal Witness*, and a large folio volume, *Taylor's Atlas of Skin Diseases*, Philadelphia, 1889.

Books and other items from many unnamed donors have been gratefully acknowledged. The Library has been singularly fortunate in the number and generosity of its friends.

Staff Changes

Miss Jessie Dyde retires at the end of June after a long period of service to the library as Head of the Cataloguing Division. After graduating from Queen's, she took her professional degree at Columbia, and served at Smith College and Oberlin before returning to Queen's. During the past fifteen years, she has brought distinction to her department, widely recognized in the library profession as one of the best in Canada. Her successor will be Blair C. Wilmot, the present Law Librarian, who will, in turn, be succeeded by Shih-Sheng Hu, LL.M., B.L.S., as Acting Law Librarian.

Miss Helen Kelley, after eighteen years on the library staff, left the Cataloguing Department at the end of December to take a senior position in the library of the National Research Council in Ottawa. Her place was filled by Mrs Anne Hart of the Order Office; Mr Donald Petty, after an absence of several months in England, resumed his former position as Order Librarian. Miss

MARY DERPAPA, a graduate of the University of Salonika, was appointed Periodicals Librarian when Mrs JEAN MALACH was granted leave of absence to attend the University of Toronto Library School.

More student assistants were employed in the Library this year and carried out their duties conscientiously and efficiently. During the second term the Douglas Library stacks were, for the first time, kept open during evening hours for graduate students and faculty, with a graduate student in charge at the Circulation Desk.

BOARD OF LIBRARY CURATORS

The Board of Library Curators, which now includes in its membership the Vice-Principal (Administration), met five times during the year to discuss library problems, administrative and financial. Special commendation is due to Professor TOWNSEND as Chairman of the sub-committee on department libraries and library expansion for the valuable report which he prepared. For the helpful cooperation of all members of the Board, the Librarian expresses his grateful thanks.

H. PEARSON GUNDY
University Librarian

The Committee on Scientific Research

The year under review is the tenth in the period 1951-61 which coincides with Principal MACKINTOSH's term of office. The growth of scientific research in the University within that period will be noted, in addition to activities of the Committee in the year 1960-1.

Research in the pure, applied and medical sciences has a rightful place in a university. Modern research has become very expensive and highly competitive. Natural phenomena must be studied with high resolution and at high speed. Equipment such as electron microscopes, infrared and ultraviolet spectrophotometers, nuclear magnetic resonance spectrometers, mass spectrometers, and pulse-height analysers are now regarded as standard in various laboratories for studies of small structures, molecules, atoms and nuclear radiations. Such items of equipment cost $15,000-$50,000 each. Rapid analysis of results often requires the use of a fast electronic computer valued at $100,000 or more. Technicians with highly developed skills are also necessary in scientific research. The graduate students, who are collaborators with members of staff in research, must also be financed either by scholarships or from grants in aid of research. It is therefore not surprising that the demands for financial support of scientific research have been rising rapidly.

The growth of financial support for research at the University is indicated by the total grants from all external sources in aid of research of all kinds; some selected figures are as follows:

1951-2	$ 275,000
1954-5	408,000
1957-8	801,000
1960-1	1,253,000
1951-61	$6,920,000

Approximately ninety per cent of these amounts were in support of the pure, applied and medical sciences. While the national pattern during the last ten years is very similar to that indicated above, members of staff at Queen's have been both active and successful in soliciting funds. To these must be added the incalculable but real support of the University in providing serviced space for research and supporting services such as purchasing, accounting, secretarial and technical. In the planning of new buildings, large specific areas for research are now being included. The supporting services have also been greatly improved in the last few years; in particular, the appointment of technicians for glass blowing, electronics, and drawing and photography was an important step in support of scientific research. The establishment of a Computing Centre at Queen's in 1960 was probably the most important single event in recent years as an aid to research; the use of the electronic computer by science and engineering departments has greatly exceeded expectations.

Important as the grants from external sources such as the National Research Council are to members of staff, these grants awarded in keen competition are never sufficient for all research projects which members of staff would like to undertake. An annual grant from the R. Samuel McLaughlin Trust Fund has provided that much-needed additional support. Beginning with a grant of $12,000 made available to the Committee by Principal MACKINTOSH in 1952, the total McLaughlin Trust Funds made available for scientific research in ten years was $188,500. This substantial sum of money has been carefully allotted for worthy projects submitted in applications by members of staff to the Committee. Approximately twenty research projects in the pure and applied sciences have thus been made possible each year.

In 1956, the National Research Council initiated a scheme of Summer Research Associateships of $800 each to members of scientific staffs in the universities. After two years, the Council withdrew from making these awards directly and replaced the scheme by block grants to the university presidents. At Queen's, the scheme of Summer Research Associateships has been continued in the pure and applied sciences with the aid of the Council's grant to the Principal. For the summer of 1961, eligibility for an Associateship has been limited to lecturers and assistant professors on full-time appointments. A Summer Research Associate must assume the obligation to devote essentially full time to scientific research in the summer and to submit a satisfactory report in September. The Committee on Scientific Research has studied the applications for Associateships and recommended that nineteen be awarded in 1961.

The extension of the Postdoctoral Fellowship scheme of the National Research Council to the universities led to the appointment of two Fellows at Queen's in 1954 — one in organic chemistry and one in nuclear physics. The scheme of Fellowships has been modified in subsequent years; at present, three new Postdoctoral Fellows may be appointed at Queen's each year. These Fellowships may be renewed for a second year without prejudice to new appointments. Since 1954, a number of Postdoctoral Fellows have worked at Queen's in each of the following fields — biology, organic chemistry, physical chemistry, geological sciences, mathematics, physics and civil engineering. The Committee on Scientific Research has recommended the appointment of Fellows in biology and organic chemistry in 1961; one position remains to be filled.

The best measure of the growth of scientific research in the University is by the quality and number of publications by members of staff. This assessment must be left to the experts in the various fields who can examine the publications listed at the end of each Report of the Principal. This list has grown greatly in the last ten years. The annual reviews of scientific research in progress, of which the latest will follow immediately, have grown very lengthy, even after severe editing.

Research in the Sciences

BIOLOGY

Plant Physiology — Isotope Laboratory — Under the direction of Dr G. KROTKOV and Dr C. D. NELSON, investigations involving extensive use of radioactive isotopes are being carried out in several fields of plant metabolism and translocation. Particular attention is being paid to photosynthesis and respiration, with special emphasis on the nature of photosynthetic products formed under white, red and blue light; effect of light on respiration; effect of leaf age on the nature and translocation of its photosynthetic products; effects of various internal and external conditions on the magnitude of translocation from leaves or needles to roots and on the nature of translocated substances. There are about twelve persons working in this group, including postdoctoral fellows, graduate students and technicians.

Plant Ecology — Dr R. E. BESCHEL has started a long range study of vernal aspects in the Kingston region. This was combined with a vascular plant survey extending to northern New York, but especially within a 10 km radius of the University's Biological Station, where over 700 species have been found. Vegetation studies of woodlands, especially cedar swamps, have been continued. Evidences of flora and vegetation for the post-glacial history of Axel Heiberg Island, North West Territories, have been gathered and their evaluation is under way.

Physiology of Hibernation — Dr H. A. DENYES has completed a study of hepatic acetate conversion in cold-exposed and hibernating hamsters. This study, using carbon-14 labelled compounds, has shown interesting alterations in fat synthesis and in the glycolytic pathways of metabolism. An investigation of fat pads in these animals has been initiated.

Entomology — Dr A. S. WEST has continued supervision of a series of entomological studies. The Insect Fauna Survey of the Lake Opinicon region has been advanced by identification and filing of accumulated specimens. A study of spider biologies at Lake Opinicon was initiated with emphasis on faunal composition and preliminary observations of nature of prey. Sawflies, spruce budworm, tent caterpillars and fall webworm larvae have been used in continued development of serological and electrophoretic techniques; particular progress has been made in the use of starch-gel electrophoresis. Studies of host haemolymph changes in relation to parasitism have been initiated. Major effort has been devoted to a continuation of studies on reactions to bites of blood-sucking insects. A histochemical study of mosquito salivary glands has been completed, and a method of isolation of mosquito saliva has been developed to provide material for analysis. A three-year study of the role of spiders as predators of the spruce budworm in New Brunswick has been completed.

Genetics and Cytology — Dr H. F. STICH has continued studies on cytology and cytochemistry of neoplastic cells, cytogenetic studies of hereditary diseases in man, radiation, and leukemias, and chemical nature of genetic material with emphasis on DNA and RNA.

(This work in the Department of Biology has been supported by the National Research Council, Defence Research Board, Ontario Research Foundation, Department of Agriculture (Canada), United States Public Health Service, Jacobsen-McGill Arctic Research Expedition, and Queen's University).

CHEMISTRY

Organic Chemistry — Dr J. K. N. JONES and Dr M. B. PERRY have prepared several new amino deoxy ketose sugars. The qualitative and quantitative separations of sugar derivatives by gas-liquid chromatography has been studied; the method shows great promise. Sugar-amino acid derivatives have been prepared and their properties investigated. The investigation of the structure and biological origin of polysaccharides is continuing.

Dr R. Y. MOIR continued his study of the influence of steric factors upon the ease of formation and upon the chemical and physical properties of ortho-substituted phenols and diphenyl ethers, of sterioisomeric chlorohydrins of 3-methoxycyclohexene, and of stereoisomeric lactones in the cyclohexane series. Nucleophilic substitution reactions of the metameconines were also studied.

Physical Chemistry — Dr W. G. BRECK is continuing his study of the thermo-electric and thermal diffusion properties of electrolytic solutions by measurement of conductance and electromotive force developed in solutions in which a controlled temperature gradient exists. Solutions of all the common ammonium salts of strong acids at various concentrations have been examined by the conductimetric method; solutions of hydrochloric acid at various concentrations have been examined by both conductance and e.m.f measurement with good agreement. The latter studies are particularly significant in that they afford a means of evaluating the partial molar entropy of the hydrogen ion at certain concentrations. Cupric solutions have also been examined by the e.m.f method with little success. The main difficulty here is the slow but relentless oxidation of the copper electrodes to form a stable cuprous oxide. The challenge to tackle this side-issue has been purposely ignored.

Dr L. A. MUNRO continued investigations of antifoaming agents.

Dr K. E. **Russell** has continued his studies of the kinetics of hydrogen abstraction reactions involving diphenylpicrylhydrazyl and polystyryl radicals. He has also determined the conductivities of certain Lewis acid-base complexes in a number of organic solvents.

Dr R. A. **Stairs** has been studying the reactions of chromyl chloride with olefines and with toluene. The products of the main reaction and a side reaction have been determined in the former, and the kinetic solvent effect in the latter. Measurements have been made of the viscosity of liquid ammonia, and salt solutions in this solvent, as part of a study of the physical properties of non-aqueous electrolyte solutions.

Dr W. **MacF. Smith** has studied both the equilibria and the kinetics involved in the ionic association reactions of iron (III), cobalt (II), and nickel (II) with various ligands. Stopped-flow equipment has been constructed and is being applied to the study of the kinetics of the reaction of cobalt (II) and nickel (II) with thiocyanate. Continuous-flow techniques have been used to study the kinetics of the association of iron (III) with sulphate and have permitted the measurement of rate constants with values up to 20,000 mole^{-1} liter sec^{-1}.

Dr R. C. **Wheeler** has employed a photometer technique to measure the concentrations of atomic hydrogen produced in some hydrocarbon-air flames. Certain fuel-air mixtures were noted to produce larger than equilibrium quantities of this and other active free radicals in the post-combustion gases. An interest in the decay of these excesses was followed and the recombination of the high concentrations of atomic hydrogen discovered to be ternary in order.

(The Department of Chemistry has received grants from the National Research Council, Ontario Research Foundation, Department of National Health and Welfare, Defence Research Board, Sugar Research Foundation, and Queen's University).

GEOGRAPHY

Dr R. I. **Ruggles** has continued research in Soviet Studies, analysing changing agricultural land use and settlement of the Maritime Territory, Soviet Far Eastern region, and the problems of supplying food to this area. He is also studying British and Dutch contributions to the scientific exploration and mapping of the Pacific Basin.

(These studies have been supported by the Department of Mines and Technical Surveys, and the National Research Council).

GEOLOGICAL SCIENCES

Geochemistry — Dr J. E. HAWLEY, with his graduate students, has continued his geochemical studies on genetic problems of both siliceous and ultra-basic rocks from various parts of Canada and on ore deposits of nickel-copper, lead-zinc, titaniferous magnetites and uranium. Among the latter are the Sullivan and other deposits in British Columbia, the Coronation Mine in Manitoba (in collaboration with the Geological Survey of Canada), ores of the Sudbury district with emphasis on distribution of cobalt, and various lead-zinc deposits of Eastern Canada.

Dr H. R. WYNNE-EDWARDS is studying the composition of co-existing metamorphic minerals in Precambrian rocks and is completing a major geochemical study of granite rocks of southeastern Ontario initiated by Dr HAWLEY.

Dr A. W. JOLLIFFE completed a study of the geochemistry of carbonate rocks, which has yielded methods of distinguishing various types of carbonate rocks and their origin, and has thrown further light on the geological environment of Precambrian time. He has also continued investigation of element assemblages and abundances in ore deposits.

Mineralogy — Dr L. G. BERRY has made a study of spencerite, a zinc phosphate from Salmo, British Columbia and of petalite, dawsonite and bertrandite.

Structural and Field Geology — Dr J. W. AMBROSE has continued studies of pre-Ordovician exhumed paleoplains, the drawing of axonometric block diagrams with the aid of a stereonet, and the structural petrology of the Perth Road syncline.

Dr W. A. GORMAN is continuing his studies in areal geology in the Temiscouta-Kamouraska region of southern Quebec.

Dr H. R. WYNNE-EDWARDS completed the mapping of the south-eastern margin of the Labrador geosyncline for the Geological Survey of Canada and is investigating flowage phenomena in highly metamorphosed rocks and the development of structures within them.

Dr J. W. KERR carried on further study of Paleozoic and thrust sequences in the Northern Independence Range, Nevada, and has begun a study of Cambrian fauna of North America.

Geophysics — Dr M. M. FITZPATRICK has completed the field work connected with a gravity study of the Monteregian Hills and the Lower Ottawa Valley and is currently analysing the results.

(This work in the Department of Geological Sciences has been financially supported by the National Research Council, Ontario Research Foundation, Geological Survey of Canada, and Queen's University).

PHYSICS

International Conference on Nuclear Structure — The International Conference on Nuclear Structure, held at Queen's University on 29 August to 3 September 1960, was a very unusual event for Canadian physicists. The official sponsors were the International Union of Pure and Applied Physics, Atomic Energy of Canada Limited, National Research Council of Canada, Queen's University, and the Canadian Association of Physicists. The Organizing Committee consisted of eight physicists at Chalk River and Dr B. W. SARGENT, who were ably assisted by their colleagues. There were 374 delegates from 24 countries at the Conference. The Proceedings of the Conference have been published in a volume of 990 pages. Spokesmen for the delegates and reporters writing in the journals of physics have praised the scientific level of the Conference and the arrangements made by Queen's University for the comfort and entertainment of the delegates. The fine facilities of Dunning Hall auditorium and the men's residences were well appreciated by the delegates. Great credit for the excellence of the arrangements is due to Principal MACKINTOSH, Vice-Principal DEUTSCH, Professor A. BIÉLER and Mrs W. MACF. SMITH of the Agnes Etherington Art Centre, Mr H. P. GUNDY, Dr H. W. CURRAN, Mr ARTHUR JOHNSON and their staffs.

Synchrotron Laboratory — Under the direction of Dr B. W. SARGENT, four graduate students have studied photonuclear reactions and pair production, initiated by the high energy x-rays from the electron synchrotron. Investigations of the energy distributions of photoprotons have been continued, but with electronic detection methods now replacing the nuclear plate method. A silicon semiconductor detector was used with a high gain linear amplifier and a 100-channel pulse-height analyser to obtain the energy spectrum of photoprotons from a thin foil of vanadium. This method was highly successful and much faster than the nuclear plate method with its laborious scanning. A gas scintillator for the detection of charged particles was also tested; it also shows great promise for measuring the energies of photoprotons.

Dr B. W. SARGENT and Dr A. R. JOHNSTON have completed an analysis and calculations of the correction for the escape of recoil protons from the emulsion layer of a nuclear plate, such as they and others have used in neutron spectroscopy. Working under the supervision of Dr SARGENT, Mr N. K. SHERMAN has discovered several examples of the photofission of stable magnesium isotopes. For this investigation, nuclear emulsion sandwiches were made with finely-divided magnesium oxide in the middle layers, heavily irradiated with x-rays from the synchrotron, and developed in a manner which reduces general blackening.

The electronic system for the detection of electron-positron pairs in coincidence in the large magnetic pair spectrometer has been rebuilt and tested. Investigations are now in progress on the shape of the x-ray spectrum from the synchrotron and on the relative pair-production cross-sections of various elements. In another investigation, a small magnetic pair spectrometer, consisting of a ring electromagnet with uniform field, has been completed and put into operation. Coincident-pair lines from the gamma rays of radium striking a thin gold foil have a satisfactory momentum resolution of 0.3 per cent, which agrees with the calculated value.

The synchrotron is now being operated for longer periods each day by Mr HENRY JANZEN and Mr P. J. SCANLON, to whom great credit is due for the excellent operating characteristics of the machine. Mr R. D. BRADFIELD has been responsible for much of the design and construction of special vacuum boxes needed in the above investigations.

(Large operating and major equipment grants from the Atomic Energy Control Board and the National Research Council are again gratefully acknowledged. Atomic Energy of Canada Limited has generously provided several silicon particle-detectors and an actinium preparation on loan).

Nuclear Spectroscopy — Dr H. W. TAYLOR and Dr G. N. WHYTE have continued their studies of the disintegration scheme of radioactive caesium-132, mainly through coincidence studies of the low-intensity gamma rays. A search is now under way for a weak high-energy transition accompanying the decay of idium-114m, and for a number of weak gamma rays emitted by silver-108. Directional correlation measurements on polonium-214 have been completed. The spin sequence for the 769-609 kev gamma-ray cascade has been shown to be unambiguously 2 (plus) — 2 (plus) — 0 (plus). The mixing ratio for the 769 kev transition has been determined.

(This work has been supported by the Atomic Energy Control Board, the National Research Council, and Queen's University).

Theoretical Physics — Working under the direction of Mr J. R. Allen, Mr D. N. Madge has completed a theoretical investigation of the photonuclear effect in gold, based on an independent-particle model. The chief improvements on previous calculations of this type were the use of diffuse-boundary potential, treatment of excited states in terms of the optical model, and a refined analysis of the transmission of protons through the Coulomb and centrifugal barriers. A variable effective mass was used to take account of velocity-dependent forces, and both electric dipole and electric quadrupole contributions were included. The calculated photoabsorption and high energy photoproton spectrum are in good agreement with experiment, but the theoretical angular distribution of the high energy photoprotons does not completely reproduce the strong forward peaking found experimentally by W. K. Dawson and B. W. Sargent. The extensive numerical calculations were carried out by Mr Madge on the Bendix G-15 computer at Queen's University and on the Datatron at the Burroughs Data Processing Centre in Ottawa.

(This work has been financially supported by the National Research Council).

Dr W. R. Conkie has begun theoretical work on two problems: (a) the quantum-mechanical N-body problem with N less than 10, with particular consideration of the atomic N-electron problem and certain nuclear problems, and (b) the intensity distribution of photons in the x-ray spectrum produced by electrons on the target of a synchrotron.

Solid State Physics — Dr H. M. Love and his graduate students have measured the diffusion of lithium, sodium and potassium in polycrystalline and monocrystalline tungsten at various temperatures. The experimental results for various elements and for different isotopes are of importance in elucidating the diffusion mechanism. The study of diffusion in other substances has been made possible by the construction of a more sensitive ion-detecting device for the mass spectrometer. Measurements of work functions at pressures below 10^{-10}mm of mercury have continued.

(This work has been financially supported by the National Research Council and Queen's University).

Radio Astronomy — Studies of the ionosphere employing radio astronomy techniques have been carried out, under the supervision of Dr G. A. Harrower. Mr J. E. Black has completed a programme of observations relating the scintillations of four radio sources to the geometry of observation and to the earth's magnetic field. Mr J. W.

MacDougall has constructed a system of three spaced receivers capable of measuring the shape and drift velocity of ionospheric irregularities. Dr G. A. Harrower has published an anlaysis of the distribution of cosmic radio sources, treating them as collisions of galaxies. Values of the spatial density and average intensity of the sources have been obtained. Besides their significance to cosmology, these results have led to the formulation of procedures for the design of radio telescopes for extragalactic surveys.

(This work has been financially supported by the Defence Research Board and the National Research Council).

Astronomy — Under the supervision of Dr A. V. Douglas, modifications of the observing platform of the new telescope to ensure steadier temperature and seeing conditions and installation of electric fixtures have been made. Due to the expert assistance of Dr H. W. Harkness, the photoelectric photometer has been provided with a slit, sliding filter holder and viewing telescope. The instrument is now ready for testing and calibration, after which a programme of observations on selected variable and flare stars can be undertaken.

Psychology

Dr P. H. R. James has continued his experiments with very young birds. If chicks are exposed to an inanimate object placed near a localized source of intermittent light, they will subsequently respond to that object in the same way as they would to the normal parent hen. Detailed studies have been made of the length of the critical period during which this response can be acquired, and of the amount of exposure necessary to obtain the effect. Experiments on the long-term control, by this and other early experiences, of the sexual and social behaviour of birds are now in progress.

Dr R. W. Payne has been investigating the verbal behaviour of mental patients in order to determine to what extent this is affected by thought disorder as measured by different techniques, what other symptoms are associated with specific verbal abnormalities, and what the long-term prognostic implications of such abnormalities might be. A related study designed to investigate some new objective techniques for assessing thought disorder in psychotic patients has been undertaken. Dr Payne is collaborating with Mr D. Friedlander in a study designed to investigate the relationship between reaction time and thought disorder in psychotic subjects, and the different factors which might influence reaction time in an abnormal population.

In collaboration with Dr R. B. Sloane, Dr Payne has been investigating the relationship between the level of blood cholesterol in university students, and a number of other personality characteristics, especially those related to the ease with which motor and autonomic responses can be conditioned.

Dr James Inglis, with the assistance of Dr E. A. Parameswaran, has continued investigations into the effects of age and psychiatric illness upon learning ability. A good deal of evidence has been accumulated which suggests that, for example, 'memory disorder' in the elderly is associated with a breakdown of short-term storage processes. The effects of stress and personality upon the recall of simple tasks by young normal adults has also been continued. Dr Inglis has also investigated the relation of personality variables to some aspects of verbal behaviour; he has studied individual differences in operant verbal conditioning, and the effect of differences in personality upon those disturbances (stammering, etc.) which are produced by the delayed feed-back of the subject's own speech.

Dr Inglis, Dr R. W. Payne and Mr D. Friedlander, in colloboation with Dr R. F. Hetherington of the Department of Surgery, are continuing their study of the psychological effects of the surgical treatment of Parkinson's disease (pallidectomy) and of temporal lobe epilepsy (temporal lobectomy).

Dr P. C. Dodwell continued his research on cognitive development with a study of spatial and geometrical concepts in children. An objective test was devised, standardized and administered to a large group of children. Results support the Piagetian theory of intellectual development. Research was also continued on shape discrimination in animals, and new techniques for studying the squirrel were devised.

Dr R. G. Rabedeau initiated a study of the effects on sexual behaviour of intracranial hormone stimulation in male and female rats. The aim of this research is first, to establish the locus of hormone action in the central nervous system and second, to study the central and peripheral roles of gonadal hormones on specific aspects of sexual behaviour.

(This work in the Department of Psychology has been supported by grants from the National Research Council, the Dominion-Provincial Mental Health Fund, and Queen's University).

Research in the Medical Sciences

ANATOMY (*Including Histology and Embryology*)

In collaboration with Dr C. R. Dutta, Professor Basmajian completed electromyographic and morphologic studies of the pharynx and palate in man and rabbits. Dr DUTTA, with the assistance of members of the Physiology Department, is studying the brain-stem centres that control swallowing.

Dr D. A. RANNY and Professor BASMAJIAN have been engaged in electromyographic studies on the living fetuses of rabbits. A by-product of this research has been the development of a new technique of spinal anesthesia for small animals. He has made a series of tests on the effects of ingested alcohol on the nerve conduction time in man. (In collaboration with Dr G. M. LYONS).

Dr A. TRAVILL and Professor BASMAJIAN have completed their electromyographic studies of the supinators and pronators of the forearm. They were assisted by SHEILA MASON PAPRICA, Lederle Student Fellow during the summer of 1960.

Mr W. H. BOYD and Professor BASMAJIAN have been studying the electromyography of the diaphragm in rabbits, employing special multiple electrodes.

Under the direction of Professor BASMAJIAN and with the assistance of Dr W. P. JOLLIE, Dr A. F. BARADI has embarked on a study to integrate histochemical testing for alkaline phosphatase with the technique of electron microscopy. Promising results have been obtained on the gustatory and olfactory organs, the two tissues investigated to date.

Dr B. N. KROPP, upon his return from a sabbatical year, has resumed his research in experimental embryology and has embarked on several new projects arising from his visits to British and French research centres. These include (1) studies on the non-bacteriocidal protective action of penicillin, and (2) the absorption of fluoride by embryonic membranes and its effect on embryonic growth.

Dr R. D. LAURENSON has enlarged his study of congenital dislocation of the hip by coordinating morphological, photographic, radiographic and histological techniques. He has succeeded in preparing arthrograms of fetal hips outlined with air and radio-opaque solutions. Human fetal hip joints as young as 12 weeks have been studied.

With the assistance of Dr S. A. BENCOSME of the Department of Pathology, Dr E. SANDBORN has begun a study of the ultrastructural changes in the mammary gland of the adult female rat during the estrus cycle, pregnancy and lactation.

Dr W. P. JOLLIE has used experimental techniques and electron microscopy to investigate the persistence of trophoblast giant-cells in the rat placenta when it is retained beyond term. He is also studying the ultrastructural changes in the walls of the pregnant uterus.

(Financial assistance for the projects in the Department of Anatomy was obtained from the following sources: Medical Research Council, Muscular Dystrophy Association of Canada, Banting Research Foundation, Rehabilitation Foundation, Canadian Arthritis and Rheumatism Foundation, Alcoholism Research Foundation and Queen's University).

BACTERIOLOGY

Dr N. A. HINTON and Dr J. H. ORR have continued their studies of the factors relating to the virulence of Staphylococcus pyogenes. In collaboration with Dr J. TAGGART, a large scale survey of the nasal and pharyngeal carrier rates in student nurses in the Kingston General Hospital has been carried out. Approximately three years of continuous detailed data is now available from this study and an attempt is being made to determine the factors concerned with the development and permanence of the carrier state, its relationship to the development of infections in the individuals concerned and their contacts. An assessment has also been made of the suitability of various antibiotics and antiseptics in the control of the carrier state.

A study has just been completed of the effect of desiccation on the capacity of Staphylococcus pyogenes to cause disease in an attempt to clarify the role of environmental contamination on the development of staphylococcal wound infection.

A study on the ability of various antibiotics to influence the production of toxins by Staphylococcus pyogenes has also been completed. Work with antibiotics has, however, been continued in a study of the cross-resistance observed with antibiotics in the streptomycin, neomycin, kanamycin group, and antibiotics of the tetracycline series.

A study of the chemical and antigenic nature of staphylococcal polysaccharide is being performed in collaboration with Dr M. B. PERRY of the Department of Chemistry.

Studies on the sero diagnosis of rheumatoid arthritis have been continued by Dr HINTON in collaboration with Dr H. G. KELLY of the Department of Medicine. The modified sensitized sheep cell test, developed in this laboratory, and the latex fixation test, are being applied to detect the presence of a high molecular weight gamma globulin produced in patients suffering from this disease. Detailed data are now available on a series of patients over a period of between two and five years. It is hoped that by this long-term study, the diagnostic and prognostic values of these tests may be determined.

Dr F. H. MILAZZO has undertaken a general study of the psysiology of some wood-rotting fungi. The first phase of this work has been concerned with nutritional and environmental factors which influence synthesis of sterol material by these fungi. Future work will be devoted to isolation and characterization of these sterols.

(Financial assistance for the projects in the Department of Bacteriology was obtained from the following sources: Department of National Health and Welfare, Canadian Arthritis and Rheumatism Society, Medical Research Council, and the Pfizer Corporation).

BIOCHEMISTRY

Large scale dietary experiments utilizing homogeneous formula rations have been carried out with the cooperation of approximately 300 students under the direction of Dr J. M. R. BEVERIDGE. It has been shown in a study of eight commercially available margarines that these fats exert neither a hypercholesterolemic nor hypocholesterolemic effect in man. The addition of a plant sterol, sitosterol, to butter fat in amounts that would be supplied if corn oil were the dietary fat led to significant decreases in plasma cholesterol. This result indicates unequivocally that the plant sterol in corn oil accounts, at least in part, for its hypocholesterolemic action. (Joint investigation with Professor W. FORD CONNELL, Department of Medicine).

A study of the effect of diet on the excretion of fecal steroids is being carried out in collaboration with Dr H. L. HAUST and Dr A. KUKSIS.

An investigation on the nature of the process of fibrinolysis is being carried out in collaboration with Dr L. RABIN.

The effect of diet on the lipid composition of red blood cells in man is being carried out in collaboration with Dr J. G. HILL and Dr A. KUKSIS.

A method for the separation of bile acid conjugates has been developed in collaboration with Dr B. GORDON and Dr A. KUKSIS.

A study of the nutritional effects of highly unsaturated oils in animals is being carried out with the assistance of Mrs SHIH-CHEN HU.

Dr Arnis Kuksis has adapted gas liquid chromatographic techniques to separation of sterols, hydrocarbons and short and medium chain length triglycerides present in common edible oils and their molecular distillates. A reversed phase partition system utilizing polyalkylene powder columns and aqueous acetone gradients has been developed for the fractionation of long chain triglycerides.

A detailed chromatographic analysis of the hypercholesterolemic butter oil distillates has been completed in collaboration with Mr M. J. McCarthy.

Dr R. O. Hurst, in collaboration with Mr G. C. Becking, has undertaken an extensive analysis of the dinucleotides and trinucleotides obtained from calf thymus deoxyribonucleic acid after exhaustive hydrolysis in the presence of pancreatic deoxyribonuclease.

Dr J. B. M. Rattray has been investigating a chromatographic procedure for the fractionation of triglycerides and has continued the study on the effect of dietary octan-2-ol on tissue lipid composition in the rat.

(Financial assistance for the projects in the Department of Biochemistry was obtained from the following sources: Medical Research Council, Ontario Heart Foundation, and Queen's University).

Medicine

Dr W. Ford Connell, in collaboration with Dr George Mayer, has almost completed statistical study of data obtained during the anticoagulant therapy of some 1850 patients controlled by the Standard Clotting Time technique. Criteria for effective therapy and the causes of therapeutic failures are being investigated. Difficulties encountered in the measurement of relative blood viscosity have now been overcome and this technique is now being applied to the study of various types of cardiovascular disease. In conjunction with Dr Douglas Dorsey, Drs Connell and Mayer have established the fact that Triparanol (MER/29) has no significant effect on the blood coagulation of patients on long-term anticoagulant therapy. They have also been studying the effect of fibrinolysin therapy in acute thrombophlebitis.

Drs Connell and Mayer have also been associated with Professor J. M. R. Beveridge of the Department of Biochemistry in extended large scale studies utilizing homogenized formula rations with the cooperation of approximately 300 students. It has been shown in a study of eight commercial margarines that these fats exert neither a hyper- nor hypo-cholesterolemic effect in man.

The addition of sitosterol to butterfat in an amount equivalent to that present in corn oil causes significant decreases in plasma cholesterol. This result indicates unequivocally that the plant sterol in corn oil accounts, at least in part, for its hypocholesterolemic action.

During the present academic year, Dr D. L. WILSON has carried out a series of endocrine effects on peripheral blood flow in normal and diabetic subjects. This work, which has been carried out with the collaboration of Dr J. D. HATCHER, has demonstrated interesting abnormalities of the blood flow through skeletal muscle of diabetic patients even in the absence of gross arterial disease. During this year, a parallel study has been undertaken with the collaboration of Dr S. A. BENCOSME, of the electron microscopic structure of small vessels in biopsies of skeletal muscle from diabetics. The results to date suggest an unusual and early lesion of the capillary walls in the diabetic which may well be relevant to the functional abnormalities previously delineated.

Dr H. GARFIELD KELLY has performed studies on the effect of intravenous infusions of magnesium chelate on cardiovascular and renal hemodynamics.

An investigation of the renal and vasoconstrictor actions of digoxin is in progress.

A comparative study of the action of different diuretics on the kidney is being carried out.

The action of Mellaril on the electrocardiogram is being studied with the collaboration of Dr GEORGE LAVERTY.

A series of related investigations is being performed, in collaboration with Dr NORMAN HINTON of the Department of Bacteriology, on rheumatoid factor in rheumatoid arthritis.

Dr G. MALCOLM BROWN has been working on the survival of leucocytes and platelets in the hemopathic hemolytic anemia of malignant disease. With the assistance of Dr ELI RABIN, a study has been completed on the effect of urethane on the clinical course and the hemolytic anemia of myelofibrosis.

Dr BROWN and Dr L. S. VALBERG have been engaged in the setting up of a spectrographic laboratory for the study of trace metals in a wide variety of conditions.

Dr VALBERG has investigated the association between iron deficiency and a prolongation of clotting time in children.

(Financial assistance for the projects in the Department of Medicine was obtained from the following sources: Ontario Heart Foundation, Schering Corporation, Wm. S. Merrell Company, Ortho Pharmaceutical Company, and the Canadian Arthritis and Rheumatism Society).

OPTHALMOLOGY

Dr D. A. ROSEN, in collaboration with Dr T. YAMASHITA, is studying the structure of the aqueous humour drainage apparatus by electron microscopy in a variety of experimental animals. These structures will be investigated in normal eyes and eyes made glaucomatous by injection of colloidol iron. Particular attention will be directed to the mucopolysaccharide component of these structures.

Dr J. M. DE MARGERIE is conducting a photographic study of retinal blood vessels in normal and hypertensive subjects with a view to establishing individual and age variations and the genesis of hypertensive retinopathy.

PATHOLOGY

Further studies on the pathogenesis of arteriosclerosis carried out by Dr R. H. MORE disclosed that the atheromatous component of some of the lesions derives from thrombus material deep in the lesion which fails to organize. The importance of this finding, which confirms the views of some other workers, lies in the fact that the lipid comprises an important component of arteriosclerosis and these findings provide a further area in which to study the relationship between thrombosis, disturbances in lipid metabolism and the pathogenesis of arteriosclerosis. (In collaboration with Dr DARIA HAUST).

The electron microscopic study of the normal and pathologically altered intercapillary core of the glomerulus has been completed. In these studies, there was much evidence to support the idea that in the core of the glomerular tufts there is a third type of cell which is important in the reactions of the glomerulus in disease.

Studies on the pathogenesis of fibrinoid have been taken up again and factors which play a role in the derivation of fibrinoid from fibrin are under consideration.

Dr S. A. BENCOSME has used the electron microscope in a study of the structure of the pancreatic islets, kidney, heart muscle, skeletal muscle, endocrine tumors, endometrium, mammary glands, aorta and iris. He has also collaborated in the investigation of a number of problems in which the technique of electron microscopy was applied. These include:

Studies of the endothelium of the vascular tree, in conjunction with Dr R. More and Dr W. Corbett; changes in the endometrium during induced decidual reaction, in collaboration with Dr W. P. Jollie; studies of human diagnostic biopsies in conjunction with Dr R. C. Ross of St Michael's Hospital, Toronto; study of vessels of skeletal muscles, from biopsy material taken from diabetics, in collaboration with Dr D. L. Wilson and Dr Daria Haust; studies of the cytophysiology of the pancreatic islet cells, in conjunction with Dr J. Meyer; studies of human kidneys in order to correlate the clinical and ultrastructural changes occurring in patients with albuminuria, in conjunction with Dr D. L. Wilson; studies of the fine changes of the kidney glomerulus in experimental glomerulonephritis in animals with hydronephrosis, in conjunction with Dr H. D. Steele; studies of the cyclic changes of the mammary glands, in conjunction with Dr E. Sandborn; studies correlating the physiological and ultrastructural changes occurring in denervated heart muscle, in conjunction with Dr B. Whalen.

PHARMACOLOGY

Dr E. M. Boyd and M. N. Shanus found that oral doses of 3.02 ± 0.14 g/kg (LLD50 ± SE) of potassium chloride produced respiratory failure, sometimes following convulsions, accompanied by gastroenteritis, dehydration, and early renal tubular necrosis in albino rats. In association with R. A. Fulford, it was demonstrated that pilocarpine hydrochloride at the range of the median lethal dose produced in albino rats an immediate muscarinic convulsive reaction and a delayed psychotic-like toxemic reaction. The persistence of susceptibility of individual animals to the toxic effects of an LD4 of benzylpenicillin potassium and of acetylsalicylic acid was investigated with the assistance of R. A. Fulford and R. D. Harris.

Dr E. M. Boyd and associates began a study of the influence of vitamin deficiencies on the appearance in experimental animals of idiosyncratic and allergic-type reactions to benzylpenicillin. Methods have been devised for estimating various daily O.1L (tenth life) doses of drugs, such as the O.1L — LD50 and O.1L — LDO, each ± SE, in laboratory animals in a study designed to standardize measurement of chronic drug toxicity.

Dr C. E. Boyd and associates completed a comparison of the chronic toxicity syndrome produced by atropine in young animals with the clinico-pathologic changes seen in fibrocystic disease of the pancreas in children.

Dr P. P. Vishwakarma, with the assistance of R. Lawrence, investigated the mechanism of transport of the optical isomers of organic acids with relation to the functioning of the tricarboxylic acid cycle in the kidney. The enantiomorphs were found to be transported by different mechanisms.

(Financial assistance for the projects in the Department of Pharmacology was obtained from the following sources: C. E. Frosst and Company, National Cystic Fibrosis Research Foundation, Medical Research Council, National Vitamin Foundation, Parke, Davis and Company, Henry K. Wampole and Company, and the J. P. Bickell Foundation).

Physiology

Dr J. D. Hatcher has continued the investigation of the cardiotonic humoral agent which appears in the blood of dogs with severe anaemia. It has been found that the time course of appearance of this agent is similar to that of the humoral agent, erythropoietin, which stimulates red cell formation in anaemia. (With the assistance of Dr D. B. Jennings).

With the assistance of Mrs Sheila Holt, studies of the cardiovascular adjustments of the newborn dog to acute anoxic anoxia have continued. As well, a study of the cardiovascular effect of acute anaemia in newborn lambs has been started.

With the assistance of Dr P. F. Binnion, the cardiovascular effects of combinations of catecholamines and angiotensin have been studied. A potentiating action between these two types of pressor agent has been demonstrated.

Studies are continuing on the effects of anoxic anoxia and related stimuli during variations in body temperature. (With the assistance of Mr J. S. Baumber).

Studies of the circulation in the extremities of diabetic patients are continuing. (In collaboration with Dr R. West and Dr D. L. Wilson of the Department of Medicine).

Dr R. E. Semple and Dr D. G. Sinclair have continued an investigation into the factors that affect the movements of labelled proteins across living membranes. Experiments carried out during the past year were concerned with the movement of chemically labelled albumin across capillary and peritoneal membranes.

Another study has involved the measurement of the fluid compartments of turtles under various conditions. The seasonal changes that occur in these volumes, as well as the changes that occur as a result of experimental alteration of environmental temperature, are being investigated.

Dr SEMPLE has continued experiments concerned with the metabolism of dextran as well as experiments on the physiological properties of the arabogalactan obtained from the wood of the Eastern larch.

(Financial assistance for the projects in the Department of Physiology was obtained from the following sources: Ontario Heart Foundation, Canadian Life Insurance Officers Association, Medical Research Council, Department of National Health and Welfare, Defence Research Board of Canada, Ontario Research Foundation and Queen's University).

PREVENTIVE MEDICINE

Dr J. WYLLIE has performed studies on the porphyrin content in urine and in blood in cases of lead absorption, lead intoxication, intermittent porphyria and cutanea tarda. The administration of penicillamine to a number of patients with abnormalities in porphyrin metabolism has been investigated. Teeth from patients with multiple sclerosis residing in the United States, Great Britain and Canada have been subjected to spectrographic analysis for trace elements. For purposes of comparison, teeth from normal persons were also analyzed.

The study of the effect of protoporphyrin in causing regression and disappearance of Ehrlich's Ascites Tumour in female mice has been continued.

A large tumour was induced in the thigh of a female rat, after a series of injections with an iron-dextran complex. A further series of tests has been begun with a number of male and female rats.

(Financial assistance for the projects in the Department of Preventive Medicine was obtained from the following sources: Department of National Health and Welfare, and the Ontario Cancer Treatment and Research Foundation).

PSYCHIATRY

Dr R. B. SLOANE, in collaboration with Dr R. W. PAYNE and with the assisance of Mr P. O. DAVIDSON, has begun an investigation into the relations between certain psychophysiological variables (e.g. drive states, conditionability, etc.) and emotional and/or physical symptoms in psychiatric patients and normal subjects. Interest in physical illness is especially directed towards cardiac complaints.

Dr SLOANE, in conjunction with Dr I. W. COLEMAN, has carried out studies of the catecholamine content of urine of normal young adults under varying conditions of stress. Methods for the estimation of 3, 4, dihydroxyphenylacetic acid and for 0—methyl catecholamine derivatives in urine are also being investigated.

Dr SLOANE, in collaboration with Dr J. INGLIS and with the assistance of Mr R. P. JONES, has continued the investigations of the effect of monoamine oxidase inhibitors upon the mood of depressed patients.

Dr SLOANE, in collaboration with Dr R. W. PAYNE and Dr J. INGLIS, has continued the study of the role of personality variables and child-rearing attitudes in the control of blood lipid level. Relationships have been shown to exist between some individual differences and attitudes and the height of plasma cholesterol in young normal volunteers on a fat-free diet. (With the cooperation of Professors J. M. R. BEVERIDGE and W. FORD CONNELL).

Dr S. G. LAVERTY has investigated the changes produced by Lysergic acid di-ethylamide on a perceptual test and a test of over-inclusive thinking. A drug effect has been shown in alcoholic subjects, and other groups of patients are now being tested (in conjunction with Mr R. SANDERSON).

The influence of Mellaril on the EKG is being studied in conjunction with Dr KELLY and Dr FAY.

An examination of records of the Funkenstein test carried out on depressed patients, to assess the prognostic value of this test, is being undertaken (with Mr R. SANDERSON and Miss H. LEE).

SURGERY

Dr R. B. LYNN, Dr H. G. KELLY, and Dr J. E. FAY have continued investigation and research into cardio-pulmonary disease with special emphasis on congenital and acquired heart disease, pulmonary function, peripheral circulation in health and disease, and the effect of various agents on these systems.

Dr LYNN and Dr G. L. THOMPSON have completed the basic work on the new Heart-Lung Machine which has been successfully put to clinical use in the Kingston General Hospital.

Dr R. K. PADHI and Dr R. B. LYNN are continuing the investigation of revascularization procedures for use in the surgical treatment of myocardial ischaemia.

Dr R. F. HETHERINGTON, in collaboration with Dr A. F. TITCOMBE, is continuing studies on the dynamics of the cerebral circulation in man and laboratory animals. They are also carrying out a study of changes in blood pressure associated with cerebral angiography. Dr HETHERINGTON, in collaboration with Dr J INGLIS and Dr R. W. PAYNE, Department of Psychology, is continuing an investigation of the psychological correlates of Parkinsonism and temporal lobe epilepsy and their response to pallidectomy and temporal lobectomy.

(Financial assistance for the projects in the Department of Surgery was obtained from the following sources: Ontario Heart Foundation, and Medical Research Council).

Research in Engineering Departments

CHEMICAL ENGINEERING

Professor R. K. CODE continued his studies on the reaction kinetics of the catalytic oxidation of sulphur dioxide in aqueous solutions. Experimental work was also begun on a new project to study transport in packed tubes at high ratios of particle diameter to tube diameter. Initial experiments involved the measurement of radial void fractions and fluid velocity distributions in tubes packed with uniform diameter spheres.

Professor A. C. PLEWES has prepared purified acetic acid and has studied its P-V-T properties over a temperature range of from 40 to 130°C and a pressure range of 50 to 700 mm. mercury. The work was attempted to supplement data found in the literature so that a complete source of information could be made available for isothermal, isobaric and isochoric studies of the acid vapour. From the data, the Beattie-Bridgeman constants were estimated to provide a reliable equation of state for the vapourized acid.

CIVIL ENGINEERING

The Department of Civil Engineering has continued an active programme of research on various aspects of highway construction and operation as part of the Ontario Joint Highway Research Programme with the support of the Ontario Department of Highways.

Professor H. M. EDWARDS has completed a study of factoring and sampling rates for roadside origin-destination surveys. This investigation has indicated that it is possible to use simpler factoring methods than are currently in use. It has also been found that reductions in present acceptable sample sizes are justified where large traffic volumes are intercepted. The implementation of the findings of this study will result in considerable savings to those agencies performing origin-destination studies.

An investigation of vehicular speeds in transition zones between rural and urban development has been initiated. Field studies are planned for the summer of 1961. It is hoped that this study will provide an evaluation of some of the factors relating to the driver's selection of speed in these areas. Such an evaluation should provide the basis for improving on current methods of posting speed zones.

A study of the physical properties of sand-asphalt emulsion mixtures is continuing and should be completed by the end of May 1961. Several different strength tests of these mixtures have been performed in an attempt to correlate the rational and empirical test method.

Professor D. L. TOWNSEND has continued his studies into the engineering properties of varved clays and presented the results of the initial investigations at the 14th Canadian Soil Mechanics' Conference. Studies on the compactability of granular materials for highway base courses have been continued, and these results have indicated that new testing methods must be developed in order to establish a correlation between actual construction performances and the laboratory tests used at present. The work initiated by the late Dr O. MARTIN on the frost susceptibility of highway soils has been continued under Professor TOWNSEND. These results indicate that the physico-chemical mechanisms which are present during heaving of a soil do not give a sufficiently reliable indication at present of the soil's ability to heave under a highway pavement. (The field work in these areas of study has been supported by the Ontario Department of Highways, while much of the laboratory work has been assisted by the National Research Council).

Studies of the strength of highway bridges have been continued under the general direction of Dr S. D. LASH. A bridge of 50 feet span was erected and tested to destruction in the structural laboratory. This test provided a great deal of useful information which is still being studied. Dr J. A. N. LEE has continued his studies of elastic instability of trusses and of the effective width of T-beams.

Wave research work under the auspices of the National Research Council and the Department of Public Works was carried on with considerable success. The temporary acquisition of over 10,000 square feet of laboratory space enabled a large wave model of Cobourg Harbour to be examined. Remedial measures to alleviate the dredging situation put forward by Dr B. LE MÉHAUTÉ were favourably received by the sponsor. Wave work was also continued in Ellis Hall on projects supervised by Dr LE MÉHAUTÉ and Dr A. BREBNER, many of which resulted in publications. Various theoretical hydrodynamical studies were also pursued successfully by Dr LE MÉHAUTÉ.

In open channel flow, Professor R. J. KENNEDY continued to supervise work on secondary currents and allied phenomena. Professor KENNEDY finished his work on pulpwood holding grounds for the Pulp and Paper Research Institute, and a new project for that sponsor was started by Professor S. S. LAZIER.

ELECTRICAL ENGINEERING

Antenna Research — Several of the problems involved in feeding and steering the large antenna system which is under construction at Westbrook have been studied in considerable detail. Under the supervision of Dr R. M. CHISHOLM, Mr G. J. M. AITKEN has developed a progressive phase-shifting mechanism which introduces the required phase-shift into a large number of feedlines while keeping the input impendance to the whole system constant. A single adjustment shifts the phase to all lines in a continuous manner. The shunt-fed dipole, used as the basic element in the east-west array, has been analyzed theoretically and the theory verified experimentally. Considerable theoretical work has been done on the problem of correlating widely-spaced antenna systems by recording the signals on magnetic tape and using a computer to correlate them at a later time.

(Financial support for this work has been provided by a grant from the National Research Council of Canada).

Statistical Communication Theory — A new research group has been formed to study the detection of radio signals in the presence of random noise. (Supported by a contract with the Defence Research Board of Canada).

Polyphase Magnetic Inverters — Professor C. H. R. CAMPLING has studied phase-locking transients in self-locking polyphase transistor-magnetic inverters as well as asymmetrical operation of these devices. Two new schemes have been devised for the effective application of load to inverters of this type. Patent applications in the United States and Canada under the title 'Self-Locking Polyphase Magnetic Inverter' have been filed by Mr J. A. BENNETT and Professor CAMPLING. (This work has been supported by the National Research Council and Queen's University).

MECHANICAL ENGINEERING

Professor J. S. CAMPBELL has expanded his research in propagation of fatigue cracks in metals, and he has continued his active interest with Mr A. BRAUN in the free-piston engine now undergoing endurance tests for the Defence Research Board. Research in fuel injection, combustion, heat transfer, and thermal and endurance stress analysis continues on prototype free-piston engines.

Professor E. R. CORNEIL is continuing the investigation of contactless pneumatic gauging for in-process measurement of parts machined on a lathe. Simplified methods for gauge design for static gauging systems have been developed, and the response equations for dynamic conditions are being investigated. 'Noise' conditions from what appears to be chamber resonance are presently being pursued. (This research is being supported by a grant from the Defence Research Board). Research on optical feedback control has made good progress. Transistorized amplifiers using photo-electric pickups are being developed to drive a two-phase servo motor. Under the supervision of Professor CORNEIL, Mr D. R. SPRINGETT has been investigating the response of a two-phase motor under both sinusoidal and square-wave excitation.

Professor W. D. GILBERT is continuing his study of the following: (a) the flow of a jet of hot high-pressure water through an orifice into a tank of cold low-pressure water where the liquid jet partly changes to vapour which then condenses on contact with the cold water surrounding the jet, and (b) the flow of a two-phase mixture of water and steam in pipes, elbows and fittings.

Professor W. B. RICE and Mr R. SALMON, continuing their work in metal cutting, investigated the effect of microstructure on chip formation and the variation in cutting forces during the formation of segments in a continuous chip, each of which was completely formed in about 0.006 second. The emphasis is on metal cutting as a high strain-rate process including extreme friction and thermal phenomena, rather than on the improvement of particular manufacturing processes.

METALLURGICAL ENGINEERING

Professor F. A. HAMES continued his research on 'Atomic Arrangement and Ferromagnetism in Alloys', sponsored by the Defence Research Board and the National Research Council. Several new ferromagnetic alloy phases based on the platinum group metals have been discovered, and alloy composition, structure, inter-atomic distances, and magnetic properties are being correlated.

Professor D. E. Light continued his study of certain aspects of the hydro-metallurgy of uranium ores. In particular, the leaching characteristics of common gangue minerals, and the solubilization of uranium minerals using sulphur dioxide-air mixtures were examined.

Mining Engineering

Professor A. V. Corlett continued his investigations of rock mechanics in two projects: (a) the study of certain Kingston limestones to learn if their behaviour as concrete aggregate is a physical characteristic, and (b) the examination of the stress fields in a model designed to simulate a binary rock under pressure. The study of the application of rock mechanics to rational mine design was continued as a joint research problem with Denison Mines Limited.

Acknowledgment is made of the continued valuable services of Mr R. D. Bradfield in the design and construction of equipment.

This report is a cooperative effort by several members of the Committee on Scientific Research. Its membership is as follows:

B. W. Sargent
Chairman
J. M. R. Beveridge
G. M. Brown
H. G. Conn
G. H. Ettinger
J. K. N. Jones
Secretary
J. E. Hawley
R. J. Kennedy
G. Krotkov

The Arts Research Committee

A report on the functions of the Arts Research Committee was made in the 1960 statement of the Committee to the Principal. During the period covered by this report, the functions remained essentially the same.

During the year, discussions took place regarding rates of pay for student assistants under grants from the Arts Research Committee. In the spring of 1960, these rates of pay had been increased by the Science Research Committee for its activities; also rates of pay for student assistants in a number of other comparable research programmes appeared to be higher than the old scale of the Arts Research Committee. At the meeting of the Committee on 14 December 1961, it was agreed that the rates of pay for student assistants under grants of this Committee would henceforth be as follows:

	Monthly
Undergraduates who have completed one year of university	$225
Undergraduates who have completed two years of university	265
Undergraduates who have completed three years of university	305
For honours graduates of a university	350

It follows that some reconsideration must soon be given to the general scale of support of the Arts Research Committee.

The Committee also altered the dates of award of its grants. Hitherto, applications had been received until 1 March with awards being made by 1 April. Now applications are to be received no later than 1 February, and it is hoped that grants may be announced by 15 February. This change was made to facilitate the planning of their research programmes by members of the staff.

Assistance was given during the year under review to the following:

Mrs WILLIAM ANGUS,	Drama,	for purchase of materials in connection with her studies of historic buildings.
P. C. DODWELL,	Psychology,	for further research on spacial and geometrical concepts in children.
P. G. GOBIN,	French,	for subsistence in connection with research activity in France on the founding and development of French Literary Reviews.
P. H. R. JAMES,	Psychology,	for an experimental study in the field of learning theory.
J. MEISEL,	Politics,	in support of a study of the 1958 Canadian general election.
J. K. and L. P. MCDONALD,	Spanish,	for additional work in connection with the critical edition of W. H. PRESCOTT's literary criticism in the *North American Review*.
R. W. PAYNE,	Psychology,	for a study of 'over-inclusive' thinking on the part of mental patients.
R. A. PIERCE,	History,	in connection with his biography of General K. P. VON KAUFMAN, of Turkestan.
G. R. POST,	Economics,	in support of research on investment by Canadian manufacturing companies.

H. G. Thorburn, G. Rosenbluth,	Politics, and Economics,	in support of research on Canadian combines legislation.
D. W. Slater,	Economics,	in support of research into the growth and structural change of urban communities in Canada.
S. E. Smethurst,	Classics,	in support of the purchase of materials for classical studies.
G. Whalley,	English,	for further research on Coleridge.
Christopher Dean,	English,	as a subvention toward the publication of a manuscript on Lancashire dialects.

The Committee plans to meet during the summer of 1961 to have a thorough review of the principles and procedures under which it operates.

A. R. C. Duncan
Acting Chairman
David W. Slater
Acting Secretary

The Agnes Etherington Art Centre

An Art Gallery functions at its best when it presents exhibitions varying as to media and provenance, in order to bring before the public as many aspects of art as possible. Last year, with exhibitions of paintings, we included one of modern tapestries, a craft that is gaining in interest in the province of Quebec, and one of ceramics.

This year we were fortunate in being able to arrange for a sculpture exhibition. Sculpture, long dormant in our country, is rapidly developing into a major art, sometimes in relation to architecture. Important pieces of sculpture from the contemporary international school were chosen by Mr and Mrs Samuel Zacks from their own collection for this exhibition. They included work by Rodin, Marini, Laurens, Matisse, Hepworth and many others. To complete the group, Canadian pieces were borrowed from sculptors. This was the first exhibition of contemporary sculpture to be shown in Kingston and the response was very satisfying.

Two events took place during the exhibition. An 'Art at Noon' group came to study and discuss the sculpture and Mr Archie Miller, sculptor and lecturer of the University of Rochester, New York, gave an illustrated lecture on the art of sculpture.

We have considered for some time the advisability of holding each year a 'two-man' exhibition of professional standard. To inaugurate the series, the two instructors in painting, Mr ALLEN and myself, held a joint exhibition in November. The advisory committee of the Art Centre recommended following this with another show next year.

Twenty exhibitions were shown at the Art Centre, some of them arranged by us, others by the National Gallery of Canada. Paintings, sculpture, graphic arts, textiles, photography — this is the largest number of exhibitions for one year, making full use of the galleries at all times. Some of the visual material presented related to courses given in English, history and aesthetics and the exhibitions were studied for this purpose.

Evening and afternoon classes in painting and graphic arts, and the Summer School of painting continue to be well attended. The loan collection of prints for students has again been used to the full.

The financial help of the George Taylor Richardson Memorial Fund has made it possible to finance some of the exhibitions, as well as some lectures. It has also made possible, within the last two years, the purchase of six works by contemporary Canadian artists to add to the University art collection.

ANDRÉ BIÉLER
Professor and Resident Artist

The Resident Musician

The Glee Club's first-term production was *Iolanthe*, which was presented in Grant Hall for three nights at the end of November. This was characteristically successful and, by courtesy of the George Taylor Richardson Memorial Fund, was financially successful. In the second term, the Club fulfilled its obligation to complete a tape of Queen's songs for the use of the Alumni Association. Work was started on this last session, and a preliminary tape made. Some details of the remarkably interesting materials available are to be found in the Principal's Report for 1959-60.

The student orchestra, which was instituted on a basis of regular rehearsals in 1946, was re-formed and gave its first public performance in a radio broadcast over CFRC in the second term of this session. The orchestra of fifteen years ago had consisted of students, some staff members and a number of players from the city. It had become the New Symphony Orchestra of Kingston in 1954 under the direction of the Resident Musician. Since the Resident Musician's relinquishment of its direction in 1957, it had become necessary for a new campus orchestra to be formed, and encouraging features of its constitution in this, its first year of renewal, are that it consists entirely of students and that it has a complete string section, including violas and double-bass. A complete string section constitutes an orchestra, and on that foundation the rest can be built according to what wind instruments are available. This year we had flutes, an oboe, clarinets, trumpets, a French horn and kettle-drums. The George Taylor Richardson Memorial Fund supports this organization also, and its contribution this year was the addition of a cello and two violas to the existing small collection of instruments belonging to the University. Our intention is to build up this collection to the point where all instruments unlikely to be owned by students, who have studied orchestral instruments in high school, will be available to them. Mr EDOUARD BARTLETT, newly appointed director of instrumental music at the Kingston Collegiate and Vocational Institute and part-time assistant to the Resident Musician, played an important part in the development of this orchestra. In the second term, Mr BARTLETT undertook the direction of the Queen's Band.

The problem of rehearsal space, which has long been a troublesome one involving uncertainty of organization and often a great deal of furniture moving before and after rehearsals, reached critical proportions this year. It is with relief that we welcome the University's provision of a house on Lower Alfred Street, next door to the Agnes Etherington Art Centre, to serve as a temporary Music Centre for extra-curricular activities until permanent accommodation for all musical activities on the campus can be provided.

During the session, the Resident Musician was invited to compose two motets for the Renaissance Singers of Montreal, directed by DONALD MACKEY. These were performed on the CBC at the seasons of All Saints and Easter, respectively. A setting of the Office of Holy Communion was completed on the invitation of GEORGE N. MAYBEE, organist and Master of the Choristers at St George's Cathedral, Kingston. Special music for brass ensemble was composed for the installation of Chancellor STIRLING in October and was performed by students of the University. At the spring Convocation, when several members of the cast of last year's locally composed comic opera *Way Out* graduated, the chorus, *In the name of this University,* was used at their request as a processional march.

Articles published by the Resident Musician have had as their subjects: VERNON BARFORD of Edmonton (organist and choirmaster of All Saints Church (now Cathedral) from 1900 to 1956); the International Composers' Conference at Stratford; the Toronto appearances of the Royal Ballet; and the Vancouver International Festival.

The *Spring Series of Concerts* gave its third consecutive season, presenting the Hungarian String Quartet in an all-BEETHOVEN programme; WOLFGANG KANDER, flutist, and JOHN NEWMARK, pianist; RAFAEL PUYANA, harpsichordist and the least known of the series who turned in a really notable performance; and a return visit of the Toronto Wind Quintet. The three years of the series have made it clear that there are about three hundred people in Kingston who want to hear chamber music. It is this three hundred which constitute the audience of the *Spring Series*, an audience which surprises visiting artists by the quality of its attention and the catholicity of its tastes — BACH, BEETHOVEN, BARTOK and BOZZA being equally enjoyed.

GRAHAM GEORGE
Resident Musician

The Drama Department

A brief chronicle of this small department during the past year will indicate considerable industry and achievement within the limits of time, equipment, and personnel available. Fortunately, the staff is augmented by a sizable number of volunteer workers in an active and enthusiastic Drama Guild who strive for quality worthy of Queen's. Gratifying artistic and financial results have graced their efforts and added to the Alma Mater Society Building Fund, the objective of which is, eventually, a theatre for our community. A gift of $1000 to this fund betokens not only the Guild's continuing patronage and solvency but also a deep desire to add its mite. I am constantly grateful and moved by the Guild's service and support.

While the Learned Societies were at Queen's last June, this department, with members of the Faculty Players, offered entertainment to our visitors: a bill of two short plays, JOHN MORTIMER'S *The Dock Brief* and EUGENE IONESCO'S avant-garde *The Bald Soprano.* In July, *The Dock Brief* was repeated as a contribution to the Summer School's celebration of its 50th anniversary. In July also, *The Bald Soprano* and the fifteenth-century *Farce of Master Pierre Patelin* made up an evening's bill.

Climaxing the summer's activity was the première of a new Canadian play, *Emily Carr: a Stage Biography,* by HERMAN VOADEN (Arts '23), who was author-in-residence throughout the rehearsal period. For the title role, which portrayed the central character from the age of sixteen until the time of her death nearly sixty years later, we were fortunate to engage AMELIA HALL, one of Canada's leading professional actresses, who was our artist-in-residence, an example and inspiration to the students. What was to have been a first performance of a new play became an Emily Carr Festival with two performances of the play; a display of her books, some manuscripts, and paintings from the C. S. Band collection, thanks to the collector's generous loan; a lecture, and showings of a National Film Board film and film strip.

Dr SETH P. ULMAN of Reed College, Oregon, an authority especially well versed in ancient and oriental theatre, joined the staff for Summer School to teach, with distinction, the history of the theatre course.

In September, a fourth annual successful Week-end Theatre Conference occurred, with the Eastern Ontario Drama League and the Ontario Community Programmes Branch cooperating.

In November, Shakespeare's *King Lear* was given five creditable performances in Kingston to large audiences, including high school busloads from places as remote as Peterborough and Cornwall; and the student council of Brockville Collegiate Institute sponsored an appreciative reception to a sixth performance there.

February had its usual three productions: the fourteenth annual Eastern Ontario Secondary School Drama Festival; the major production, *Book of the Month*, a recent British comedy; and a programme of one-act plays, student-directed. Among the latter, an experimental staging of T. S. ELIOT's *The Wasteland* gained favour and IONESCO's *The Lesson* went into the National Inter-Varsity Drama League Festival at the University of Western Ontario and earned awards for best actor, best actress, and best director.

In March the Drama Guild, as a service to the community, sponsored the American star, CORNELIA OTIS SKINNER, in her programme of 'Character Sketches'. In April, the Director of Drama produced *The Reluctant Debutante* for the Faculty Players.

Our enviable costume collection continues to grow by the generous gifts of friends and the industry of student seamstresses under the expert direction of MARGARET ANGUS, assisted by HEATHER KEMP of the Faculty Players. New costumes for *King Lear* increased our Shakespearean category to nearly 175. Groups in and out of town continue to call upon our services, especially in costuming. Mrs ANGUS went three times to Smiths Falls to conduct workshops and the Director of Drama conducted a workshop in acting at Brockville. Members of the Drama Guild and of the Faculty Players continue to add to, maintain, and improve the existing equipment and, by toil and ingenuity, to surmount the cramped space and deficiency of facilities.

William Angus
Professor and Director of Drama

Physical Education

During the summer and fall of 1959, the gymnasium was renovated and enlarged and the students enrolled in the year which has just concluded were the first to enjoy to the full the advantage of these enlarged facilities. I am pleased to report that the additions and changes have been very satisfactory, and are much appreciated.

A total of twenty-eight different intramural leagues and competitions are organized in the course of the college year and activities are conducted on the courts and playing fields in the late afternoon during September and October and in the gymnasium four evenings a week during the winter months. This programme for both women and men has been gradually extended, and it is estimated that about two-thirds of the students enrolled in the various faculties and schools participate in these activities.

The School of Physical and Health Education continues to grow in numbers and to enjoy the prestige which its students have won for it over the past years. Twenty-eight students graduated in May. Twenty-six of these will probably be teaching in secondary schools of this province starting in September, and two plan to go to the Ontario College of Education for the full year. The total enrolment in the School for the current year was 137, with 56 in the first year. The students have applied themselves to their work with diligence and enthusiasm and, in addition, have made important contributions to the various student organizations and athletic teams that have been a part of the life of the University during the year.

As the student enrolment grows, the required physical education classes for the first-year men and women become larger and larger. The gymnasium facilities are required for 32 hours per week between 10.00 a.m. and 4.30 p.m. for these classes, which necessitate two, and sometimes three, classes being carried on at the same time. The Levana intercollegiate teams use the building daily from 4.30 p.m. to 5.30 p.m. and each Saturday afternoon, and the main gymnasium floor is used by men's intercollegiate teams from 5.30 p.m. to 7.00 p.m. daily. Intercollegiate competition takes place on Friday or Saturday each week from late November until early March. The swimming pool is open daily for general use by the women students from 3.30 p.m. to 4.30 p.m. and by the men students from 4.30 p.m. to 6.00 p.m. This is in addition to the time when the pool is used for required classes in physical education, learn-to-swim classes, and classes in life saving and advanced swimming.

I would like to pay tribute to all the members of the staff of this department who give freely of their time in assisting in the various intramural and recreational activities conducted for the students. This is in addition to their assigned teaching in the various required classes and in the School of Physical and Health Education. The gymnasium is a busy place and I think the general atmosphere indicates a feeling of enthusiasm and satisfaction by students and staff alike.

In conclusion, I would like to praise the attitude of the students, both women and men, who use this building and the other athletic facilities of the University. They are active and enthusiastic; they organize their time well; they are understanding and cooperative; and they make the gymnasium, the rink, the athletic fields and the tennis courts happy and worthwhile places in the life of this University.

F. L. Bartlett
Director, School of Physical and Health Education

The Athletic Board of Control

Last spring the Athletic Board of Control was forced to curtail its intercollegiate participation due to a financial deficit. Consequently, the sports remaining on the men's programme were football (intermediate and senior), basketball (intermediate and senior), golf, and harrier. The latter two were included since they were being held in Kingston with no expenditure for travelling. The reasons for the deficit were investigated and it was felt that the influence of televized professional football games, and inclement weather for our home football games were the major causes.

Through consultation with members of the Alma Mater Society executive, it was decided to hold a plebiscite in the fall of 1960 regarding an increase in the athletic fee which had not been raised since 1952. The results of the plebiscite were overwhelmingly in favour of increasing the athletic fee from $15 to $20. This has since been ratified by the Board of Trustees. Due to the increase in the athletic fee, and the fact that 1960-1 was a year of financial success, a full athletic programme has been scheduled for the coming year with the exception of the intermediate football and basketball teams which were dropped in order to reinstate senior hockey.

Several changes were made at the annual meeting of the Ontario-Quebec Athletic Association which affect the Queen's athletic programme. Two divisions were set up in the senior hockey league: Queen's, Waterloo, McMaster, and O A C comprise the western division, and Toronto, McGill, Laval, and Montreal comprise the eastern division. A playoff between the leading team in each division will decide the championship. The University of Waterloo was admitted to the O - Q A A, and have entered basketball and several other sports in addition to hockey.

Levana athletic teams won more than their share of championships this year. Championships were won in tennis (a three-way tie), badminton (all matches won in first and second singles and doubles), and basketball. Other teams entered were volleyball, swimming, intermediate basketball, and indoor and outdoor archery.

The men's intercollegiate programme, although curtailed, produced some very thrilling contests. The senior football team, after tieing for the league lead at the end of the regular season, lost out to McGill in a playoff. The senior basketball team, lightly regarded at the beginning of the year, managed to win several important games. The University was also represented in golf, harrier, boxing, wrestling, and skiing. The latter three sports were competed in by students who financed themselves.

Fortunately for the intercollegiate, intramural, required physical education, major physical education, and other University programmes requiring the use of a hockey arena, it was decided to allow the Jock Harty Arena to stand for yet another season. It would appear that the existence of a building of this type which engenders community good will and which is used on the average of seven to eight hours per day by University groups is justified. The playing fields and track are also being used to the maximum. Unfortunately, the Kingston Tennis Club courts seem to be located too far off the campus to get maximum use by the students in general.

Jack Jarvis, boxing coach emeritus, retired this spring after over thirty years as head boxing coach at the University. He has been succeeded by Captain Ralph I. Jenkins.

On the basis of a sounder financial picture, it appears that the coming year, with its full programme, will serve to help round out the education of Queen's students with friendly competition and inter-university fellowship.

P. J. Galasso
Director of Athletics

The University Medical Officer

The general health of the students for the past session has been good. During the year, there have been approximately 1,360 visits to the Medical Office and twenty-eight home visits.

Influenza and upper respiratory infections are the chief diseases. Mumps and measles, with a few cases of chickenpox and infectious mononucleosis were the most common contagious diseases, but at no time did the number of cases reach real epidemic proportions. There were, of course, the usual number of traumatic incidents but these were mostly minor and the majority of these accidents could be dealt with in the Out-Patient Clinic of the Hospital. The number of hospital admissions totalled twenty, twelve of which involved surgery.

Mrs Florence Paul, Reg.N., held morning office hours in Leonard Hall and Ban Righ Hall. She was ably assisted by Miss Margaret Stevens, Reg.N. The Medical Office in Etherington Hall remains fairly busy during the medical hours. Besides dealing with those who are ill, there is an increasing number of physical examinations required for fellowship and bursary applications, as well as pre- and summertime employment. Every year we find students who are not covered with any, or adequate, hospital insurance in spite of the importance of individual coverage stressed in the calendars of all the faculties.

The Division of Tuberculosis Control conducted a mass chest x-ray of those in their final year and fourth-year Medicine. Fortunately, no active cases of pulmonary tuberculosis were found this year.

I would like to thank Dr D. L. Wilson, Dr R. K. Padhi, Mrs Florence Paul and Miss Margaret Stevens, Reg.N., for their kind cooperation and efforts in the interests of the Health Service.

H. M. Campbell, M.D.
University Health Officer

The Queen's University Naval Training Division

The University Naval Training Division Tender at H M C S 'Cataraqui', as of 15 March 1961, had a strength of thirty-two, comprised of one third-year, two second-year, four first-year R O T P Cadets and four third-year, nine second-year and twelve first-year U N T D Cadets. In addition, three forty-five month plan R O T P medical students were enrolled although they do not attend parades. In addition to the Commanding Officer, there were five officers serving as instructional and administrative staff, three of whom were graduates of this U N T D.

Winter training continued satisfactorily. The full syllabus was completed, but without any time to spare. Flashing and semaphore continued to be a problem. The training in these subjects is still not considered to be satisfactory although some plans have been laid which should improve this situation during the training season 1961-2. The Naval Warfare Section of third-year training was conducted by Commander A. G. C. WHALLEY, R C N(R) (retired), and the Cadets benefited considerably from Commander WHALLEY's very considerable knowledge of the subject. For training projects, a series of seminars in electronics were conducted by the Executive Officer and Captain A. G. BRIDGMAN, C.D., R C N, very kindly came over from the National Defence College to lecture to the Cadets on the Dock-yard organization. Attendance was good and averaged 91 per cent through the training year.

The social life in the Gunroom was exceedingly quiet throughout the year. With the exception of the Tri-Service Ball, there were no large organized functions. However, a good deal of activity was generated by the construction project which produced a fine new plywood-panelled Mess. The new decor considerably improved the morale in the Mess and the utilization of the facilities increased. The Tri-Service Ball this year was organized by the U N T D and was considered by all to be a highly successful dance. In addition to their own Mess activities, the Cadets were invited to the Wardroom Mess Dinner and approximately half of them attended.

Twelve of our thirteen Probationary Cadets were recommended by the Selection Board for promotion to the rank of Cadet and we were very pleased when this recommendation was approved. Again this year, we managed to have an intake which was slightly higher than the planned intake for this Division. One academic failure in the ROTP at Christmas reduced our numbers when the Cadet left the service. We were pleased to have all four third-year Cadets recommended for promotion to Commissioned Rank.

Donald M. Chown
Lieutenant-Commander, RCN (R)
Commanding Officer

The Queen's University Contingent COTC

Fifty years of military training have been accomplished at Queen's. The COTC, as such, was organized during World War I but in 1910 a Militia unit was formed at the University and we have, in Lieutenant-Colonel D. M. Jemmett, D.C.M., Emeritus Professor of Electrical Engineering and a former Commanding Officer of the COTC, one who was a member of that first unit. At our annual mess dinner, Colonel Jemmett told of the history of military training at Queen's and pointed out that the strength of the unit had, to some extent, reflected the international political situation of the times. During periods of crisis, the contingent was strong while after both wars and in periods of real peace, the enrolment dwindled.

This year, there was a surplus of applicants for COTC and seven recruits, out of a quota of six, were enrolled. The pay increases for COTC cadets announced in the fall may have had some bearing on the number of applicants.

The strength of the contingent as of 31 March 1961 was as follows:

	ROTP	COTC	*Medical*	*Total*
Contingent Officers	—	4	—	4
Cadets: 1st year	3	7	3	13
2nd year	6	3	—	9
3rd year	3	3	—	6
4th year	1	—	—	1
RMC Graduates	11			11
				44

Lieutenant Colonel H. G. Conn, O.B.E., was reappointed Honorary Colonel. Lieutenant R. D. Abbott resigned as a contingent officer after obtaining a degree in Law and moving to Ottawa. Lieutenant R. W. Stuart, a Militia officer now studying at Queen's, was taken on strength as a contingent officer and Lieutenant M. White, on the strength of the PWOR, was attached to our unit. The Commanding Officer was promoted to the rank of Captain.

Military training was carried out during the academic year in a somewhat different fashion from previous years. This was largely occasioned by a change in training standards. Lectures were reduced in number and replaced by tours of local military establishments, shooting and tactical exercises without troops (TEWTS). The Area Commander carried out an inspection of the contingent during a training night.

The contingent attended the Remembrance Day service in Grant Hall. The annual mess dinner was held with the RCEME School officers in their Mess during December 1960, at which Lieutenant Colonel KENNEDY presented a small token to the RCEME School Mess in appreciation of the generosity of the Mess to our unit for many years past. The Tri-Service Ball was held at the RCEME School Mess in February and was, as usual, a great success. Some thirty-five cadets, officers and guests attended a 'dining in' evening at the Area Headquarters Mess in March.

Officer Cadets R. M. BUCKTHORP, W. B. BURWELL, G. N. HOUZE and F. J. WATKINS and Second Lieutenant N. E. SCHAMERHORN were awarded the COTC prizes for 1960. The RCE Memorial Scholarship was won by Second Lieutenant R. A. SNELLING. The prize for rifle shooting was won by Officer Cadet R. A. BOWLER. Mr SCHAMERHORN received one of the few postings to the Canadian Brigade in Europe for summer training.

S. S. LAZIER
Captain, Commanding Officer

The Queen's University Squadron Royal Canadian Air Force

This year marked the end of an era for the Queen's University Squadron with the retirement of Wing Commander J. E. WRIGHT, M.B.E., E.D. Wing Commander WRIGHT has been the Commanding Officer of the Squadron since its formation in 1949. His long association with the Royal Canadian Air Force has not been severed as he is being retained on the Auxiliary List (Ret.). He was succeeded as Commanding Officer by Squadron Leader W. B. RICE.

Flying Officer M. O. LUNDLIE recently transferred to the Squadron from the Supplementary Reserve and assumed the duties of Squadron Training Officer.

Flight Lieutenant W. R. Scott who came to Queen's as Resident Staff Officer in 1957 has returned to flying duty as a jet instructor, and has been replaced by Flight Lieutenant C. E. Quinn who has just completed a tour as a navigation instructor at No. 2 Air Observer School in Winnipeg.

The strength of the Squadron at 15 April 1961 was:

	Primary Reserve	*Regular Force*
Arts and Science	18	3
Applied Science	4	35
Medicine	1	4
Staff	2	2

Of the Regular Force, eight are graduates of the Royal Military College.

Training lectures on military and general interest topics were held on Wednesday evenings from September to March. Following the April examinations, the Squadron members were assigned to various R C A F stations for service training. Three Primary Reserve Cadets and one medical student were sent to R C A F units overseas. Four members of the Primary Reserve, who graduated in May, were commissioned and transferred to the Supplementary Reserve and thirteen who were with the Regular Force commenced their full-time employment in the R C A F.

W. B. Rice
Wing Commander, Commanding Officer

The Alma Mater Society

A heavy programme of business but no really major problems comprised the record of government at Queen's in the one hundred and third year of existence.

A growing interest in the affairs of the National Federation of Canadian University Students was a by-product of the excellent work done by the local committee headed by Mr Robbie Shaw. A delegation consisting of Misses Mary Wilkins and Judy Rice and Messrs Stewart Smith, Dick Gathercole and Don Fraser attended the N F C U S seminar at the University of British Columbia 28 August - 3 September. The purpose of the seminar was to bring together representative groups of carefully selected students to discuss topics and issues of national importance to the universities and the country as a whole and to provide an exchange on a national level of the different regional concepts and attitudes which exist in

Canada. The Queen's delegation made a notable contribution to the proceedings and received a valuable experience which the members were able to translate into terms of renewed vigour on the Queen's campus.

A delegation consisting of Miss MARY WILKINS and Messrs BOB LITTLE, DICK GATHERCOLE and ROBBIE SHAW attended the national N F C U S congress at Halifax 18-23 September and their mandate on higher education was one of the features of the well-planned programme.

An interesting feature was the visit of four Russian students under N F C U S auspices for a one-day period. The visitors attended a meeting of the Alma Mater Society, met with the students at large, formally and informally, and made a major contribution to student life at Queen's by their very presence.

The local N F C U S committee and the Student Christian Movement held a seminar at Queen's 29 and 30 January on 'The Function and Purpose of the University', which attracted a great deal of interest and helped to focus attention on the work of both organizations. It is expected that N F C U S prestige will be further enhanced by the first national congress to be held on the Queen's campus which is planned for 28 September to 3 October of this year. This expensive undertaking will be financed by conference fees, which will cover about half the cost, and by grants from the University, the Alma Mater Society, and the provincial government. This is the most ambitious student conference ever sponsored at Queen's and will give the Alma Mater Society an opportunity to show the campus to student leaders from across the country and at the same time give Queen's students an insight into the importance of this national organization.

When the A M S executive picked up the reins of office last fall, the members found that they had inherited the problem of a large deficit facing one of the major standing committees, the Athletic Board of Control. During the summer the Board, in order to retrench, had found it necessary to withdraw from Intercollegiate competition in hockey, badminton, tennis, skiing, boxing, wrestling, tennis and track.

The executive approved a $5 increase in the athletic fee from $15 to $20. This decision was later endorsed in a plebiscite placed before the student body by a vote of 942 to 255. The fee increase, which does not become effective until the fall of 1961, will make possible a return to hockey, boxing, wrestling, skiing, and track.

Extensive revision of the A M S Constitution this year included changes in the Athletic Board of Control Constitution to provide for a better balance of representation of students, alumni, and staff, and to include, for the first time, the Constitution of the Levana Athletic Board of Control. A female Athletic Stick will sit on the A M S executive for the first time next year.

The perennial problem of faculty society representation on the A M S executive came in for close scrutiny last year, with the impetus being provided as usual by the Engineering Society which felt it was entitled to one more representative on the executive. The battle was conducted in orderly fashion, the old arguments were paraded, and the upshot was that one more representative was added, but for the Theological Society and not the Engineering Society. The decision was a continuation of the policy held by the Alma Mater Society for many years that membership on the executive is not representation by population. It is a problem that will undoubtedly continue and likely will never be resolved to the satisfaction of all, but the prevalent policy does seem to be best suited to the Queen's scene.

The Alma Mater Society was represented at various conferences, with special care being taken to ensure that the best envoys were sent. At the McGill Conference on World Affairs the delegates were STEWART SMITH and ELI RABIN, with BYRON SPENCER, SYD OVERALL and MICHAEL WHITE as observers. For World University Service at the University of Western Ontario on 'Problems of Overseas Students in Canada', the delegates were SOHINDER CHOPRA, ALVIN JOHNSON, and Miss DIANNE CAMPBELL. J. L. GETLIFFE was the delegate to the U N E S C O national conference at the University of Toronto.

The problem of overseas students at Queen's were studied by several organizations, including the A M S executive which gave them recognition as a campus club and encouragement in their efforts to establish an international house. Arrangements were made for all foreign students to receive health insurance coverage for the three-month period they need to qualify for the Ontario health plan.

Growing interest was shown in the Theatre Fund, the committee chairman this year being TERRY NICKERSON. The sum of $4,970 was raised during the year, including grants of $1,000 from the Drama Guild, $500 from the Arts and Science Society, $500 from the Engineering Society, $1,000 from the Faculty Players and $300 from Science '61. A tag day brought in $606, and the sale of Christmas cards realized $374. The remainder of the money came from a variety of student projects. Possible new sources of income for next year are now being explored. It is the fervent hope of the committee that its efforts will be augmented spectacularly by individuals or organizations who may become interested in this worthwhile project.

Snowball, under the chairmanship of Miss LOIS KNIGHTS, solidly entrenched itself as one of the major events of the student calendar. A well-rounded programme, with the traditional ice sculpture competition as a highlight, attracted widespread interest and participation. A shortage of fresh snow handicapped the student sculptors, but with their usual ingenuity they successfully coped with the problem and created several masterpieces. The prize-winning entry was the work of the class of Science '63 and depicted KHRUSCHEV and Uncle SAM splitting up the world between them.

While the fortunes of Snowball were waxing, those of Colour Night waned. This year the banquet and the dance were held on successive nights; the banquet was successful, the dance had a deficit of more than $300. It would appear that the pattern of student life has changed so that a dance held any later than the end of February no longer is an attraction. Next year's executive will have the decision to make as to whether the banquet and dance should be held on the same night, or whether the dance should be held some time during the month of February and the banquet during March.

The growing needs of student organizations for office and meeting space were made the subject of a survey of a committee under the direction of WERTHY NELSON. The committee produced an excellent report and it is hoped to implement many of the recommendations when the proposed addition to the Students' Union is completed.

A threat to the official yearbook, the *Tricolor,* which is now operating on a sound financial basis after many years of deficits, arose in the proposal of several classes to produce their own yearbook. While the Alma Mater Society was assured that there would be no competition with national or local advertisers and that the class book was not intended to take the place of the *Tricolor*, nevertheless it was felt to be inherently dangerous. It was ultimately decided to permit those classes which had already committed themselves to the project to continue with it, but to ban such publications in the future.

The *Journal* had problems of its own, mostly with rising costs. By exercising various economies, it was found possible to break approximately even, but even stricter measures will be necessary to hold back the tide in the future. *Who's Where* showed a substantial profit, while the *Students' Handbook* was distributed free of charge as a service particularly designed for first-year students.

Other student ventures were successful in varying degrees. The band again practically paid its own way, a vast improvement over the $1,000 and $2,000 deficits of a few years ago. The revue, 'Pay the Piper', broke even, as compared with the $600 deficit of the preceding year.

The A M S Court had a comparatively quiet year, which is a fairly sound indication that student behaviour, while not necessarily exemplary, was at least tuned in a low key. Student spirit was commendably evident in the success with which the Heart Fund was promoted, along with claim for a world record for bed-pushing which, although disputed by other universities, brought a large measure of satisfaction locally. The Quarathon was revived, again successfully, although the impact of the initial venture was lacking. Backers of the telegram to the Queen's football alumni — LOU BRUCE, GARY SCHREIDER and RON STEWART — had no difficulty in obtaining the names of upwards of 2,000 names, including those of the top hands on the University administration.

Through the generosity of the Rector, Dr L. W. BROCKINGTON, six J. Arthur Rank films were shown during the year. The films were given two showings each in Ellis Hall and played to standing room only.

'For valuable service to the University in non-athletic, extra-curricular activities', the following were named as members of the Tricolor Society: Miss DAWN CAMPBELL, PETER GALLOP, DICK GATHERCOLE, Miss NANCY KEITH, LARRY LEAFLOOR, TOM MARSHALL, DOUG MUNRO, R. F. W. NELSON, TERRY NICKERSON, ELI RABIN, HUGH SCOTT.

To my successor, STEWART GOODINGS, and his executive, I can only wish that he have as good a year in office as was my lot.

R. A. LITTLE
President

The Alumni Association

In 1960, the sum of $146,584 was contributed to the Alumni Fund by 6,025 graduates, as compared with $142,754 the preceding year.

By faculties, the contributions were as follows: Arts and Science, $60,654; Applied Science, $53,019; Medicine, $33,084. There were 435 new donors, that is, persons who had never before made any contribution to the Fund, contributing $5,028, and 561 who increased the size of their contributions. There were 1,375 who contributed in 1959 who did not participate in the programme of annual giving in 1960. Those who did participate represented 37.5 of the total number of graduates solicited.

The average contribution was $24.33. Contributions by size were:

3199 gave $ 10 or less	($23,987.36)
1891 gave $ 11 to $ 25	($38,389.39)
554 gave $ 26 to $ 50	($23,865.44)
273 gave $ 51 to $100	($25,433.50)
57 gave $101 to $200	($ 6,812.95)
39 gave $201 to $500	($10,770.50)
6 gave $501 to $1,000	($ 5,500.00)
6 gave over $1,000	($11,825.00)

Four appeals were mailed out during 1960. The first brought in $29,586 from 1,727 alumni; second, $23,332, 1,203; third, $35,032, 1,495; fourth, $44,024, 1,084; and $14,610 came in from 516 alumni which could not be credited to a mailed appeal or a canvass. Most of the latter were from Regular Annual Donors.

In the Regular Annual Donors category there are now 1,023 alumni, that is, persons who have been regular contributors over a number of years and who are sent a reminder at a date of their own choice, rather than the regular appeals. This group forms the solid nucleus for the Fund and it is hoped to enlarge the membership substantially in the next few years. During the past twelve months, approximately 600 agreed to become Regular Annual Donors.

In addition to the $146,584 contributed to the Alumni Fund, the sum of $68,433 was given by graduates as follows: National Fund, $21,800; bequests, $46,633.

Objectives for the Fund last year were men's and women's residences, general endowment, Marty Memorial Scholarship Fund, and the University's national scholarship programme. Of course, it was clearly understood that the graduates were free to earmark their contributions to any University project. This year the objectives will probably remain the same, with the exception that the women's residence will be dropped and the emphasis, for women graduates, will be placed on the Marty Memorial Scholarship.

Last year the graduates designated their contributions as follows: general endowment, $89,666; women's residence, $5,785; men's residences, $11,576; Marty Memorial, $945; national scholarship programme, $2,588; other projects $36,024.

Alumni Body

There are 17,364 living graduates: Arts and Science, 9,083; Applied Science, 5,266; Medicine, 2,094; Commerce, 1,052; Theology, 111; Nursing Science, 151; Physical and Health Education, 126; Law, 18; honorary, 175. More than 700 hold more than one degree.

The geographical distribution is as follows: Ontario, 11,296; Quebec, 1,528; Manitoba, 207; Saskatchewan, 275; Alberta, 404; British Columbia, 555; Nova Scotia, 139; New Brunswick, 121; Prince Edward Island, 11; Newfoundland, 26; North West Territories and Yukon, 20; United States, 1,475; foreign, 540.

Officers and Board of Directors

Dr JOHN E. HAMMETT, Med. '19, New York City, was re-elected president of the Association for the ensuing year at the sixty-second semi-annual meeting of the Board of Directors held at Queen's on 8 October.

Also re-appointed for one-year terms were H. I. MARSHALL, Ottawa, Ontario, as first vice-president, and Dr JOHN ORR, Kingston, Ontario, as second vice-president.

Appointed for a one-year term as additional directors were: Dr R. A. MACPHERSON, Winnipeg, Manitoba; A. S. ROBB, Belleville, Ontario; S. F. SAUNDERS, Orillia, Ontario; N. G. STEWART, Kingston, Ontario; and GRAHAM WHIDDEN, Toronto, Ontario.

In the annual election of directors, for a three-year term, the following were elected: J. G. ANDERSON, Peterborough, Ontario; Miss BESSIE BILLINGS, Toronto, Ontario; Dean H. G. CONN, Kingston, Ontario; H. I. MARSHALL, Ottawa, Ontario; W. E. SOLES, Quebec, P.Q.

Meetings

Meetings of the Board of Directors were held on 20 May and 8 October. The annual meeting of the Association was held on 8 October. A meeting of the directors in the Toronto area was held at the Toronto Engineers Club on 11 February.

Branch Activities

Eighty-five meetings were held by branches and alumnae groups. Among the guest speakers were: Mrs E. J. Pratt, Dr Lorne Pierce, Dr A. R. McKinnon, Miss Phyllis Haslam, Ray Boucher, Dr Arthur Lismer, Mrs André Biéler, and the following members of staff: Dr W. A. Mackintosh, Dr J. A. Corry, Dr J. J. Deutsch, Professor Douglas LePan, Miss Isabel Laird, Dr Hilda Laird, Miss Jean McGaughey, the Rev. A. M. Laverty, Mrs Edwin Bryce, Dr John Orr, Miss Jean Royce, Dr Norman Miller, Professor Frank Tindall, Dr John Meisel and Dr Christopher Dean.

Dr Norman Miller, emeritus professor of mathematics, and Mrs Miller, past president of the Alumnae Association, visited all the branches in western Canada: Winnipeg, Saskatoon, Edmonton, Vancouver, Victoria, Trail, Calgary, and Regina, as well as attending meetings in Salmon Arm, Kelowna, the Lakehead, and Sault Ste Marie.

Dr Miller brought his listeners up to date on all activities at the University, with particular reference to the new buildings, and the increase in courses offered, including those of the Law Faculty and the School of Business. In addition, Mrs Miller showed coloured slides of the campus.

The Toronto Alumni Award was made to Dr Lorne Pierce, Arts '13, LL.D. '28, as one 'deserving the recognition for services to society and, directly or indirectly, to Queen's University'.

The Montreal Medal, 'for meritorious contribution to the honour of Queen's', was given to Dr John Orr, Med. '23, head of the Department of Bacteriology.

The Queen's Review

A major change of policy was adopted with the decision that, starting 1 January 1961, the *Review* would be published six times a year, and copies of the magazine would be sent to the entire graduate body. It was found that by decreasing the number of issues, no additional expense was involved in increasing the circulation.

Douglas Library Notes, a four-page newsletter published in the interests of the Douglas Library, was included as an insert in four issues.

Central Mailing Office

Approximately 325,000 mailings were made by the Alumni Association's Central Mailing Office, including all mailings for the alumni branches. In addition to the *Review* and the appeals on behalf of the Alumni Fund, the office looked after the *Queen's Quarterly* and official mailings for the University administration and departments.

Four thousand, three hundred and seventy-one address changes were recorded by the Central Mailing Office during the past twelve months.

The 1960 Reunion

Reunion 1960 was successful from every angle — the weather was perfect, the opportunities for getting together were plentiful, and the football team defeated their arch rivals from the University of Toronto in a convincing manner.

It is estimated that there were five hundred present, half the number of the preceding year because of the smaller classes scheduled for a reunion. All events, official and unofficial, were well attended and the impression was left that all concerned enjoyed themselves.

The classes of 1910, celebrating their fiftieth anniversary, were well represented, with ninteen taking part in the festivities. ARTHUR A. HOLLAND, Pensacola, Florida, and MCLAREN EWART, Medicine Hat, Alberta, both of the class of Science '10, had the distinction of coming from the most distant points.

The senior graduates were the guests of the Alumni Association at the football game and at the Reunion dinner in Wallace Hall. They were presented with sterling silver spoons bearing the Queen's crests and the inscription 'Fiftieth Reunion'. The presentation was made by Dr JOHN E. HAMMETT, of New York City, president of the Alumni Association.

Features of the week-end programme included a tea in the Students' Memorial Union, a bus tour of the city and the campus under the direction of Dr H. W. CURRAN, director of the Department of Extension; and a reception in Grant Hall, attended by upwards of three hundred alumni, friends, and members of staff, at which refreshments were served by the members of the Kingston Alumnae Branch.

After the football game there was a tea in Ban Righ Hall, at which Dr and Mrs W. A. MACKINTOSH greeted the guests; the tea was served by members of the Women's Faculty Club, under the direction of Mrs W. G. LEONARD, president. On Saturday evening there was a reception and a buffet at the LaSalle Hotel for the members of the more recent classes and for graduates for whom no reunions were scheduled.

The Reunion dinner in Wallace Hall for the senior graduates was well attended. ARNOLD EDINBURGH, formerly a member of the staff of the English Department at Queen's and now editor of *Saturday Night*, was the guest speaker. Dr JOHN J. DEUTSCH, vice-principal (administration), acted as chairman and introduced the senior graduates individually and the reunion classes collectively. Greetings from the University were extended by Principal W. A. MACKINTOSH.

The programme closed on Sunday with a University church service conducted by the Reverend A. M. LAVERTY, University chaplain.

H. J. HAMILTON
Secretary-Treasurer

The Alumnae Association

The 1960-1 term has been rather a quiet one compared to the activities over the past two to three years which resulted in the opening of Chown Hall last year — a beautiful building named to honour, in her lifetime, Miss MAY CHOWN (since deceased), who had been so keenly interested in all the residences for women at Queen's.

Marty Memorial Scholarship

This Scholarship was founded in memory of Dr ALETTA MARTY and her sister SOPHIA MARTY, Queen's graduates of 1894 and 1897, respectively. Our main concern during the past year has been to increase the capital fund of this Scholarship to guarantee our $2,000 payment. Although first awarded in 1937 for $1,200, it has been increased to $1400, $1600 and in 1960 to $2,000. The Marty Memorial Scholarship has been awarded for study in 1961-2 to Mrs MARJORIE ALLEN, M.A., wife of Dr J. R. ALLEN, Assistant Professor of Physics at Queen's University. Mrs ALLEN is an outstanding student of uniformly high calibre; has two C I L Fellowships in Chemistry, a National Research Council Studentship and has already published one article in collaboration with Professor MOIR of Queen's. Two further articles are about to be published. Mrs ALLEN intends to do postdoctoral research in chemistry at the University of Manchester, England.

Dr PAULINE JEWETT, Carleton University, who has chaired the Scholarship Committee so efficiently and whose term of office has now been completed, will be succeeded by Dr ARLISS DENYES, Queen's University — both former holders of this Scholarship.

Eliza Fitzgerald Scholarship

Established seven years ago to honour Miss ELIZA FITZGERALD, Queen's 1888, at the request of Dr GENEVE MISENER, 1894, this small scholarship of $100 is awarded to an honour student at Queen's in her final year. This spring, the honour went to MARGARET I. COOPER, Hamilton, with the award to FAITH Y, HARRIS, Windsor.

A capital fund was established some years ago and with the assistance of Miss ESTHER HARROP, Vancouver, and donations from the branches, it is anticipated that the scholarship will be awarded annually.

Membership

From a possible 4,629 women graduates, contributions to the Alumni Fund have been received from 1,633. As this number is lower than last year, it is hoped that more women graduates will contribute to the Alumni Fund as this is our only source of current income. From a five dollar donation to the Fund by a woman graduate, a rebate of fifty cents is sent to us. Of course, it is anticipated that each donation will greatly exceed five dollars and be designated for the Marty Memorial Scholarship Fund.

Affiliations

The Queen's University Alumnae Association is affiliated with the Alumni Association, the Canadian Federation of University Women and the National Council of Women.

A new representative on the National Board of Directors of the Alumni Association is to be appointed this year, replacing Mrs HEWSON KELLAM, Ottawa, who has asked to be relieved of this duty. The president and branch presidents of the Alumnae Association are members of the Board by virtue of their office.

Many of our graduates are active in the C F U W and the N C W and they, or other graduates, on request, represent the Alumnae Association at national meetings.

Annual Meeting

The Annual Meeting was held in Toronto this year on 13 May 1961. Over ninety members attended the meeting which was preceded by a delicious luncheon in the Sheraton Room of the King Edward Hotel. Dr MARCUS LONG, professor, scholar, and television panelist, spoke to us on world affairs — a witty, informative and thought-provoking after-luncheon speaker. Branch reports indicated a great variety of interests and projects. Among other business, the meeting approved a recommendation from the Executive to use the ANNE E. GORDON bequest to purchase a specially-designed curved dining-room table to be used as head table by the Dean of Women in the enlarged dining-room of Ban Righ Hall.

KATHLEEN F. ELLIOTT
President, Queen's University Alumnae Association

Endowment

Alumni Organizations for:		
Scholarships	$ 1,200.00	
Other Projects	2,306.00	$ 3,506.00
Students Organizations for:		
Other Projects	$ 1,000.00	1,000.00
Other Individuals and Organizations for:		
Alumni Fund	$ 2,280.00	
Endowment	16,655.67	
Research, Grants, etc. from Companies and Foundations	654,500.50	
Scholarships, etc.	162,358.53	835,794.70
Bequests from Alumni for:		
Endowment	$ 33,707.78	
Scholarships, etc.	9,419.04	43,126.82
Bequests from non-Alumni for:		
Endowment	$ 29,399.98	
Scholarships	7,667.42	37,067.40
		$920,494.92

National Fund for Queen's University

In 1960, additional subscriptions of $6,320 were received to bring the total subscriptions to $4,064,363.

The Fund, as of 31 December 1960, was as follows:

Total Subscriptions	$ 4,064,363
Total Collected (Approx. 90%)	3,645,247
Total Outstanding Pledges	$ 419,116

During the past year, 191 payments became due on account of subscriptions and, of these, 187 (amounting to $255,205) were received. Several overdue payments have since been collected.

A breakdown of annual payments due and past due is as follows:

Arrears to Dec. 31, '60	$ 44,181	(Since paid—$2,420)
Due in 1961	139,152	(Collected to 31/3/61—$46,316)
Due in 1962 and on	235,783	
	$419,116	

Distribution of subscriptions by districts is as follows:

Name of Division	*Total Division Subscriptions*	*Number of Subscriptions*
Special Gifts	$ 100,000.00	1
Calgary	7,253.00	57
Edmonton	2,875.00	8
Halifax	650.00	2
Hamilton	157,610.00	79
Kingston	341,896.00	217
Kirkland Lake	25.00	1
Kitchener	43,825.00	57
Lakehead	680.00	5
London	62,173.37	26
Montreal	1,144,022.50	348
Moose Jaw	1,250.00	4
New York and U.S.A.	43,142.19	250
Oshawa	7,420.00	22
Ottawa	69,745.15	86
Quebec	58,760.00	27
Regina	5,435.00	26
St Catharines-Niagara	33,960.00	38
Saskatoon	1,525.00	5
Sault Ste Marie	48,025.00	9
Sudbury	67,635.00	56
Toronto	1,552,592.46	544
Vancouver	105,289.15	33
Windsor	32,965.00	42
Winnipeg	96,525.00	28
Yellowknife	725.00	5
Others	22,018.95	98
Queen's Alumni	56,340.39	1
	$4,064,363.16	2,075

M. C. TILLOTSON
Secretary

Public Relations

A further step in implementing a programme of public relations at Queen's, as approved by the Board of Trustees after detailed study, was taken with the appointment of DONALD S. SWAIN as Director of Public Relations on 1 April.

The new Director's responsibilities will be wholly within the realm of public relations and he will not be directly concerned with endowment and financial matters. DAVID G. DEWAR, who has been Director of Publicity for the past eleven years, will be associated with the Director of Public Relations on news coverage and press relations.

The Office of Public Relations will have advisory functions, as well as being responsible for the continuing development of effective means of communication and the strengthening of relations between Queen's and interested individuals, groups and organizations. The approach has been carefully planned as a result of thorough study by the Board and the Principal as to practical methods of furthering public awareness and understanding of Queen's as a Canadian University of recognized national and international reputation and responsibilities.

To an increasing degree, public understanding of Queen's and higher education in general, nationally, regionally and locally requires specialized attention. The purpose of such efforts is to ensure in so far as possible the most accurate and effective communication of information about the University's academic programme and administrative operations. This will be the role of the office which is now equipped to administer an integrated public relations programme under the direction of the Principal and the Board of Trustees.

By the nature and scope of its responsibilites, activities of the Public Relations Office will be related to student recruitment, community relations, creating increased understanding of the University's financial requirements among existing and potential supporters and, generally, serving as liaison within and without the University by facilitating the distribution and interpretation of information about Queen's.

D. S. SWAIN, B.J.
Public Relations Director

Publicity

Queen's University publicity during the year 1960-1 covered a wide range of events, personalities and topics. Representative samples of some of these give the flavour of the past year.

The Learned Societies meetings in May-June brought 3,000 of Canada's leading scholars and scientists to Queen's to attend the meetings of more than thirty societies and associations. During this three-week period, the Publicity Office operated seven days a week. Other conferences on which news releases were issued included: The Conference of International Nuclear Scientists, World Symposium on Concrete Design, Film Council Seminar, Theatre Week-end Workshops, Penicillin (Biochemistry) Conference, International Astronomical Union, and several others.

Summer School was a busy six-week period in July and August. Much material was written on the fine arts (painting, music, ballet and drama), the language laboratory, visiting professors, the Summer School Association's activities, the School of English (French students) and a dozen other groups. Releases in French were sent to forty Quebec newspapers.

Convocation week-end on 21-3 October was the year's highlight, with the installation of Chancellor STIRLING, the awarding of an honorary degree to Prime Minister DIEFENBAKER and the opening of the Sir John A. Macdonald Law Building. Considerable publicity material was sent out in advance and the office personally contacted twenty daily newspaper editors prior to the event. The Medical Convocation on 28 May was another event of interest for which detailed coverage was provided.

News stories about staff members are an important part of the programme and there is a constant demand for biographies and photographs of 250 staff members which the office keeps on file and up-to-date for use as required.

Substantial assistance was given in the preparation of material and photographs for the new Faculty of Law booklet.

General publicity coverage during the year included: the opening of the Ellis Hall Observatory, the Dunning Trust Lectures, the award of building contracts for the Richardson Laboratory and Kingston General Hospital, McLaughlin Hall and the new wing of Gordon Hall, two drama festivals, reviews of each issue of the *Queen's Quarterly*, special guest lecturers and releases for the Art Centre.

Among research projects 'written up' were eight articles on various heart experiments, the Heart Open House and the annual Kingston Heart Campaign, including research being carried out by Doctors W. F. CONNELL, H. G KELLY, D. L. WILSON, R. B. LYNN and J. D. HATCHER; Dr G. A. MAYER's anticoagulant service; pathology research of Doctors R. H. MORE, G. F. KIPKIE, S. A. BENCOSME; Dr J. INGLIS in psychiatry; Dr D CAMPBELL on alcoholism; the Peruvian corn experiment; advances in penicillin; Dr D. W. SLATER in economics; Professor J. L. MCDOUGALL on pensions; Queen's Economic Research Institute (Professors KNOX and URQUHART); civil engineering research on waves and littoral drift, highway speeds and concrete bridges. These subjects illustrate the range and variety of University activities and events that received attention.

The office assisted in publicity arrangements for a number of major student events. These included the Model Parliament, Snowball '61, the Alma Mater Society, Color Night and announcements of many scholarship winners. Queen's Quarter Hour on Radio Station C K W S completed its 550th consecutive weekly broadcast.

D. G. DEWAR
Director of Publicity

Radio Station C F R C

Queen's Radio Station C F R C has been on the air fifty-one of the fifty-two weeks this past year. The very limited vacation-time schedule was made possible by a few devoted broadcasters.

During the University term, broadcasts followed C F R C ' s usual pattern with a good portion of time devoted to classical music. Local musicians were presented In Recital and staff members discussed their work in the Queen's at Work series.

Studio Theatre, presenting excerpts from Drama Guild plays and readings of poetry and short stories, alternated with a new discussion programme. Speaking Frankly, with Professor JOHN MEISEL as chairman, brought staff and students before the microphone discussing a variety of controversial subjects such as: athletic fees, religion, Cuba, Israel, the bomb, and modern strategy. The regular programme in French produced by Mrs A. R. C. DUNCAN was followed by a broadcast in German produced by the German Club.

Special remote broadcasts covered the installation of Chancellor STIRLING, the opening of Sir John A. Macdonald Hall, and the Dunning Trust lectures. Our taping facilities were used by an increasing number of University organizations and departments.

In September, the Canadian Broadcasting Corporation used our facilities to feed to the International Service reports on the meetings of the nuclear physicists at Queen's.

The Student Radio Club has had an active and successful year with a total membership of 123 students. A competent and responsible executive directs the Club activities to the benefit of radio at Queen's.

MARGARET ANGUS
Director of Radio

The Men's Residences

The major change made in the operation of the residences during this past session was the addition of dining facilities. These became available in the spring of 1960 and were used for the first time for the graduation luncheon of the Engineering Faculty on 21 May 1960. The several conventions held at the University during the summer of 1960, including the meetings of the Learned Societies which were attended by some three thousand persons, gave the staff an excellent opportunity to familiarize themselves with the new equipment before the opening of session. In spite of the summer operations, there were still many problems to be overcome when the students arrived in the fall. These were largely the result of the large numbers arriving for their meal at the same hour, particularly at noon.

The students cooperated well and with the assistance of the Dining Room Committee, made up of students together with the dietitian and the manager, these difficulties have been overcome.

Through the efforts of the students, assisted by the wardens, a most satisfactory start was made on a programme of student-staff functions which gives every promise of expanding.

I feel that we have had a most satisfactory year and should like, as chairman, to express my thanks to the members of the Residence Board who have given so generously of their time to deal with the problems which have cropped up during the session.

On behalf of the Board, I should like also to express our appreciation of the efforts of the wardens — Dr F. D. BARRETT in Morris Hall, who also served as chairman of the Warden's Committee, Mr G. C. SHAW in McNeill House and Mr D. W. BEWS in Leonard Hall. They, with their dons, Messrs J. M. MACINTYRE and A. FELL in Morris Hall; J. W KERR and W. C. LOUGHEED in McNeill House; Drs PAUL PUHACH and LIONEL RABIN and Mr D. COLEMAN in Leonard Hall contributed greatly to the life of the residences.

I want particularly to express our thanks to the student committees, headed in the case of Morris Hall by Mr STEPHEN FERGUSON, in McNeill House by Mr JOHN HEWITT and in Leonard Hall by Mr ROSS DIXON. A year ago the students undertook to assume a greater degree of responsibility for controlling their own affairs. I can only say that to the best of my knowledge, they have lived up to their undertaking.

I would be remiss were I not to acknowledge the efforts of the Manager, Mr A. JOHNSON, who has been faced with many problems during the session, and I should like to express the appreciation of the Board for the manner in which he has dealt with them.

JOHN ORR
Chairman, Men's Residence Board

Publications by Members of the University

Arranged Alphabetically by Departments

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The Registrar's Report

DEGREES granted October 1960 and May 1961

	Men	Women	Total	Total
HONORARY DEGREES				
Doctor of Laws (LL.D)	11		11	
Doctor of Divinity (D.D.)	2		2	
Doctor of Science (D.Sc.)	3		3	
	16			16
DEGREES BY EXAMINATION				
Graduate Studies				
Doctor of Philsophy (Ph.D.)	10		10	10
Queen's Theological College				
Bachelor of Divinity (B.D.)	8	1	9	9
Faculty of Arts and Science				
Master of Arts (M.A.)	11	10	21	
Master of Science (M.Sc.)	22		22	
Bachelor of Arts with Honours (B.A.)	23	30	53	
Bachelor of Science with Honours (B.Sc.)	38	8	46	
Bachelor of Arts (B.A.)	129	161	290	
Bachelor of Commerce (B.Com.)	8	3	11	
	231	212		443
Faculty of Applied Science				
Master of Science (M.Sc.)				
Chemical Engineering	4		4	
Chemistry (Engineering)	1		1	
Civil Engineering	5		5	
Electrical Engineering	5		5	
Geological Sciences (Engineering)	2		2	
Mechanical Engineering	6		6	
Metallurgical Engineering	1		1	
Physics (Engineering)	1		1	
	25		25	
Bachelor of Science with Honours (B.Sc.)				
Chemical Engineering	3		3	
Chemistry (Engineering)	7		7	
Civil Engineering	5		5	
Electrical Engineering	4		4	
Geological Sciences (Engineering)	1		1	
Mechanical Engineering	4		4	
Metallurgical Engineering	1		1	
Physics (Engineering)	5		5	
	30		30	

	Men	Women	Total	Total
Faculty of Applied Science (continued)				
Bachelor of Science (B.Sc.)				
Chemical Engineering	30		30	
Chemistry (Engineering)	10		10	
Civil Engineering	29		29	
Electrical Engineering	32		32	
Geological Sciences (Engineering)	10		10	
Mechanical Engineering	33		33	
Metallurgical Engineering	6		6	
Mining Engineering	10		10	
Physics (Engineering)	14		14	
	174		174	229
Faculty of Medicine				
Master of Science in Medicine (M.Sc.Med.)	2		2	
Doctor of Medicine and Master of Surgery (M.D.,C.M.)	1		1	
Doctor of Medicine (M.D.)	43	4	47	
	46	4		50
Faculty of Law				
Bachelor of Laws (LL.B.)	17		17	17
School of Nursing				
Bachelor of Nursing Science (B.N.Sc.)				
Public Health Nursing		16	16	
Teaching and Supervision		13	13	
		29		29
School of Physical and Health Education				
Bachelor of Physical and Health Education (B.P.H.E.)	12	11	23	23
	569	257		826

DIPLOMAS granted October 1960 and May 1961

Faculty of Medicine				
Medical Radiology (Diagnosis)	1		1	1
Faculty of Applied Science				
Civil Engineering	1		1	1
School of Business				
Business Administration	1		1	1
School of Nursing				
Public Health Nursing		5	5	
Teaching and Supervision		4	4	
		9		9
	3	9		12

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

Geographical Distribution 1960-1	Arts and Science, Business, Physical and Health Education	Applied Science	Medicine	Law	Graduate Students	Nursing (Degree and Diploma)	Total	Summer School and Extramural Degree Courses	Non-Degree Summer School Courses	Evening Classes	Municipal Assessors and Municipal Clerks and Treasurers' Courses	Total	Banking	Chartered Accountants' Course	Trust Companies' Course	Total	Total Registration
Alberta	14	7		2	5		28	154					169		28	197	379
British Columbia	18	6	4		5		33	29					290		40	330	392
Manitoba	8	6	2	2	3	2	23	39	2		1	3	127	23	17	167	232
New Brunswick	3	3	2		4		12	53	4		1	5	61	73	5	139	209
Nova Scotia	5	2			9	1	17	42	1		1	2	96	103	19	218	279
Ontario	1328	729	272	45	115	60	2549	1803	231	481	452	1164	640	1644	171	2455	7971
Prince Edward Island	1				1		2	5	1			1	9	14	2	25	33
Quebec	94	64	21	8	9	6	202	132	124			124	385	61	62	508	966
Saskatchewan	15	5	7		5		32	90			13	13	147	26	14	187	322
Newfoundland	2	1		2	4		9	95			2	2	26	65	1	92	198
Labrador								2									2
North West Territories								14					4			4	18
Yukon													1			1	1
Argentina		1					1										1
Australia	1				3		4										4
Bahamas														2		2	2
Barbados																	
Bermuda	3		1				4	19	5			5		11		11	39
Brazil	1						1										1
British Guiana													9			9	9
Burma		4					4										4
Colombia													3			3	3
Cuba	1						1						1			1	2
Cyprus		1					1										1
Dominican Republic													5			5	5
Egypt	1						1										1
Eire	2				2		4										4
England	7	1	1		20		29	3									32
France	1		1				2										2
Germany	3	1			2		6	5					1			1	12
Greece	1	1	1				3										3
Guatemala								1									1
Hong Kong	5	19			2	2	28										28
Hungary	4	1	3		6		14										14
India					7		7										7
Indonesia	1	1					2										2
Japan								1									1
Korea					1		1										1
Lebanon	1						1										1
Libya								1									1
Malaya					1		1										1
Mexico		1					1										1
Netherlands	3	3	1				7										7
Northern Ireland					1		1										1
Norway	1						1										1
Pakistan					1		1										1
Philippines					1		1										1
Scotland	1			1	3		5	1									6
South Africa	1				1		2										2
Spain		1					1										1
Thailand	1						1										1
United States	26	2	14		4		46	19	6			6	6			6	77
Venezuela									1			1	1			1	2
Wales					2		2										2
West Indies	19	6		3	2		30	2					19			19	51
Total	1572	866	330	63	219	71	3121	2510	375	481	470	1326	2000	2022	359	4381	11338

DISTRIBUTION OF STUDENTS IN ONTARIO

Distribution of Students in Ontario by Districts	Arts and Science, Business, Physical and Health Education	Applied Science	Medicine	Law	Graduate Students	Nursing (Degree and Diploma)	Total	Summer School and Extramural Degree Courses	Non-Degree Summer School Courses	Evening Classes	Municipal Assessors and Municipal Clerks and Treasurers' Courses	Total	Banking	Chartered Accountants' Course	Trust Companies' Course	Total	Total Students from Ontario
Eastern Ontario																	
Carleton	119	49	36	6	10	7	227	79	3		21	24	48	119	7	174	504
Dundas	9	2	2	1			14	7	1		2	3	1			1	25
Frontenac	224	66	43	12	52	4	401	310	190	451	4	645	8	13		21	1377
Glengarry	7	3			1		11	3									14
Grenville	9	9	1	1			20	15	1		3	4	3			3	42
Hastings	54	32	13	1		2	102	99		30	6	36	3	10		13	250
Lanark	28	9	9		2	3	51	23			4	4	6	1		7	85
Leeds	59	13	7	1	2	1	83	46	1		3	4	3	6	4	13	146
Lennox and Addington	22	8	2		2		34	20	1		7	8	1			1	63
Prescott	6	3					9	3			2	2	2	1		3	17
Prince Edward	9	3	1			2	15	13			1	1	3	2		5	34
Renfrew	31	15	5	1		3	55	33			9	9	3	5		8	105
Russell	1	1			1		3						2	1		3	6
Stormont	24	18	4	3	1	1	51	26			3	3	12	3		15	95
	602	231	123	26	71	23	1076	677	197	481	65	743	95	161	11	267	2763
Central Ontario																	
Dufferin		2					2	2			3	3	2	1		3	10
Durham	20	6	5	1	1		33	36	1		1	2	2		1	3	74
Haliburton	1						1	2			2	2					5
Halton	19	13	7	1		2	42	20			9	9	4	21		25	96
Lincoln	18	28	3	2		2	53	24			18	18	22	22		44	139
Muskoka	7	8					15	10			2	2	6			6	33
Northumberland	12	8	4		1		25	30			5	5	2			2	62
Ontario	33	11	4	1	1	4	54	107	1		10	11	4	9		13	185
Peel	14	14	1	1		2	32	19			9	9	12	17	2	31	91
Peterborough	43	10	5	1	1	2	62	85			8	8	4	14		18	173
Simcoe	15	12	6		1		34	25			8	8	10	7	1	18	85
Victoria	4	1	1	1			7	23	1		1	2	5	5	1	11	43
Welland	24	45	5	1	1		76	29			16	16	12	21		33	154
Wentworth	23	12	24	2	2	1	64	25	1		15	16	22	67	10	99	204
York	183	104	29	3	7	7	333	358	21		78	99	233	960	101	1294	2084
	416	274	94	14	15	20	833	795	25		185	210	340	1144	116	1600	3438
Western Ontario																	
Brant	15	9	2			1	27	7			8	8	6	22	5	33	75
Bruce	2	2			1		5	3			1	1	2	5		7	16
Elgin	9	3	1		1		14	3			7	7	7	7	1	15	39
Essex	21	12	11	1	1		46	19	1		35	36	31	47	4	82	183
Grey	4	1	2		2		9	6					5	6	1	12	27
Haldimand	4	1					5				3	3	1	1		2	10
Huron	3	1			1	1	6	3			8	8	7	1		8	25
Kent	13	9	3	1			26	4			5	5	8	9	2	19	54
Lambton	11	5			2		18	12			11	11	8	5	3	16	57
Middlesex	11	7	2		1		21	21	3		8	11	22	56	9	87	140
Norfolk	9	8	1			1	19	1			3	3	10	4		14	37
Oxford	4	12	1		3		20	4	1		9	10	20	4	1	25	59
Perth	8	3	2				13	5			2	2	9	6	3	18	38
Waterloo	18	17	5		2	3	45	14	2		15	17	16	48	8	72	148
Wellington	14	3	3			2	22	14	1		7	8	6	14	2	22	66
	146	93	33	2	14	8	296	116	8		122	130	158	235	39	432	974
Northern Ontario																	
Algoma	24	17	5		4		50	36			12	12	3	16	2	21	119
Cochrane	30	18	2	1	1		52	31			11	11	13	14		27	121
Kenora	3	8	3			1	15	13			4	4	2	5		7	39
Manitoulin								2					1			1	3
Nipissing	10	7				4	21	19			7	7	10	10		20	67
Parry Sound	5	5		1			11	7			1	1					19
Patricia		1					1										1
Rainy River	4	2					6	13			3	3	4	3		7	29
Sudbury	24	26	6		4		60	35	1		23	24	2	33	2	37	156
Temiskaming	10	12	1		1	2	26	14			7	7	3	1		4	51
Thunder Bay	54	35	5	1	5	2	102	45			12	12	9	22	1	32	191
	164	131	22	3	15	9	344	215	1		80	81	47	104	5	156	796
Total Students from Ontario	1328	729	272	45	115	60	2549	1803	231	481	452	1164	640	1644	171	2455	7971

REGISTRATION

The registration for 1960-1 compared with the previous session is as follows:

DEGREE COURSES

	1959-60				1960-1			
	Men	Women	Total	Total	Men	Women	Total	Total
INTRAMURAL REGISTRATION								
Faculty of Arts and Science								
First registration	188	198	386		212	261	473	
Previously registered	388	371	759	1145	446	416	862	1335
School of Business								
First year	35	5	40		44	3	47	
Second year	14	1	15		27	4	31	
Third year	9	5	14		12	1	13	
Fourth year	24	2	26	95	9	3	12	103
School of Physical and Health Education								
First year	17	18	35		27	27	54	
Second year	12	15	27		13	18	31	
Third year	17	15	32		10	12	22	
Fourth year	5	12	17	111	15	12	27	134
School of Nursing								
First year		23	23			36	36	
Final year		22	22	45		19	19	55
Faculty of Applied Science								
First year	238		238		231	1	232	
Second year	265	1	266		208		208	
Third year	222		222		208		208	
Fourth year	204		204		216		216	
Special students	3		3	933	2		2	866
Faculty of Medicine								
First Premedical year	49	10	59		54	10	64	
Second Premedical year	41	8	49		48	8	56	
First Medical year	52	8	60		44	7	51	
Second Medical year	61	1	62		49	6	55	
Third Medical year	44	5	49		55	1	56	
Fourth Medical year	46	7	53	332	44	4	48	330

	1959-60 Men	1959-60 Women	1959-60 Total	1959-60 Total	1960-1 Men	1960-1 Women	1960-1 Total	1960-1 Total
Faculty of Law								
First year	23		23		27		27	
Second year	18		18		18		18	
Third year	16	2	18	59	17	1	18	63
Graduate Students								
Doctor of Philosophy	24	3	27		47	3	50	
Master's Courses								
Arts and Science	61	20	81		56	17	73	
Business Administration					17		17	
Applied Science	54		54		59		59	
Medicine	7	1	8	170	4		4	203
	2137	753		2890	2219	870		3089

EXTRAMURAL REGISTRATION—*Faculty of Arts and Science*

	1959-60 Men	1959-60 Women	1959-60 Total	1959-60 Total	1960-1 Men	1960-1 Women	1960-1 Total	1960-1 Total
Summer School at Kingston	391	221	612		433	257	690	
Summer School at Bermuda	10	30	40			10	10	
Summer extramural	767	508	1275		827	538	1365	
Less also in Summer School	401	251	652		433	267	700	
	366	257	623		394	271	665	
Winter extramural	766	631	1397		994	697	1691	
Less registered also in summer	326	189	515		347	199	546	
	440	442	882	2157	647	498	1145	2510
TOTAL REGISTRATION (*Intramural and Extramural) in Degree Courses*				5047				5599

NON-DEGREE COURSES

Intramural

	1959-60 Men	1959-60 Women	1959-60 Total	1959-60 Total	1960-1 Men	1960-1 Women	1960-1 Total	1960-1 Total
Diploma in Anaesthesia					5	2	7	
Diploma in Medical Radiology	2		2		4		4	
Diploma in Business Administration	8		8		1		1	
Diploma Courses in Nursing		8	8			10	10	

	1959-60				1960-1			
	Men	Women	Total	Total	Men	Women	Total	Total
Diploma in Civil Engineering					1		1	
Diploma in Nuclear Engineering	1		1					
Special Students (Graduate Course and Nursing Courses)	3	2	5		3	6	9	
Industrial Relations	10		10					
School of Fine Arts, School of English, and auditors at the Summer School	76	272	348	382	71	304	375	407
Evening Classes								
Art	21	77	98		11	66	77	
Canadian Industrial Management Association	40		40		30		30	
Professional Development Programme	50		50					
Russia in Résumé	23	28	51					
Soviet Russia in the News					6	6	12	
Swimming	56	291	347		56	275	331	
Typography				586	26	5	31	481
Extramural								
Banking (Fellows' Course)	1592	46	1638		1949	51	2000	
Chartered Accountants' Course	1965	19	1984		1999	23	2022	
Municipal Assessors' Course	225	2	227		201	2	203	
Municipal Clerks' and Treasurers' Course	238	16	254		251	16	267	
Trust Companies' Course	314	5	319	4422	352	7	359	4851
TOTAL REGISTRATION *in Non-Degree Courses*				5390				5739
TOTAL REGISTRATION *in Degree Courses and Non-Degree Courses*				10437				11338

JEAN I. ROYCE
Registrar

The Financial Report

The following financial report is submitted for the year ended 30 June 1961.

AUDIT REPORT

To the Trustees of Queen's University:

We have examined the attached balance sheets of the various funds of Queen's University as at June 30, 1961 and supporting financial statements and schedules for the year ended on that date. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion the attached balance sheets and supporting financial statements and schedules present fairly the financial position of the University as at June 30, 1961 and the results of its operations for the year ended on that date in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ENGLAND, LEONARD, MACPHERSON & CO.,
Chartered Accountants.

Kingston, Ontario
September 1, 1961.

BALANCE SHEET
as at June 30, 1961

ASSETS

Current Funds

Fees and accounts receivable (less $7,000 allowance for doubtful accounts)	$ 110,088
Loan receivable — (to be recovered in 10 equal annual installments)	45,000
Inventory of coal — at cost	46,502
Free piston engine — development costs	9,907
Prepaid expenses	19,963
Sundry current assets	873
Assisted research expenditures recoverable	81,493
Funds invested in securities (see Investment Fund)	116,290
	$ 430,116

Plant Funds

Funds invested in securities (see Investment Fund)	$ 1,738,094
Bank Escrow Account (re Physiology Building)	112,600
Land, buildings and equipment — valued at 1952 replacement value per insurance appraisal with subsequent acquisitions from plant funds at cost	29,322,815
	$31,173,509

Endowment and Other Non-Expendable Capital Funds

Funds invested in securities (see Investment Fund)	$12,381,788
Real Estate — 32 Queen's Crescent	35,000
Notes Receivable — Students' Memorial Union (see contra)	173,418
	$12,590,206

NOTE: As at June 30, 1961, work was in process for the extension of plant facilities, which it is estimated will cost a total of $9,975,000. The total amount paid to this date and recorded in the accounts was approximately $7,975,000 and, accordingly, the cost to complete will be approximately $2,000,000. It is the University's current accounting practice to record construction costs only when paid. As a result, there are unrecorded liabilities of approximately $410,000 for work completed but unpaid as at June 30, 1961.

BALANCE SHEET

as at June 30, 1961

LIABILITIES

Current Funds

Accounts payable and accrued charges		$ 180,532
Unearned income and fees paid in advance		124,885
Provision for purchase orders outstanding as at June 30, 1961 and chargeable to current year's budget		28,727
Reserve for anticipated deficits of ancillary enterprises for the 1961-62 fiscal year		25,000
Net income carried forward (unallocated net income)		70,972
		$ 430,116

Plant Funds

Accounts payable (see footnote below)		$ 5,500
Trust funds for use in building programme:		
Restricted	$ 150,978	
General unspent plant funds	374,918	525,896
Maintenance Reserve (provision for replacement of plant)		1,319,298
Funds invested in capital assets		29,322,815
		$31,173,509

Endowment and Other Non-Expendable Capital Funds

General Endowment		$ 8,220,726
Restricted Endowments:		
Research	$ 74,386	
Students' loans — capital	5,000	
Scholarships and fellowships	1,315,762	
Faculty and departmental funds for specific operating purposes	1,403,357	
Other	1,397,557	4,196,062
Unpaid portion of cost of Students' Union assumed by Students' Memorial Union Council (see contra)		173,418
		$12,590,206

BALANCE SHEET

as at June 30, 1961

ASSETS

Trust and Other Expendable Funds

Funds invested in securities (see Investment Fund)		$ 2,174,141
		$ 2,174,141

Investment Funds

Cash in bank		$ 50,754
Bonds, debentures, stocks, mortgages and lease-backs — at cost less amortization of premiums (approximate market value as at June 30, 1961 $18,228,000)	$17,013,086	
Less allowance for possible losses	653,527	
		16,359,559
		$16,410,313

BALANCE SHEET

as at June 30, 1961

LIABILITIES

Trust and Other Expendable Funds

Restricted:			
Research		$ 488,583	
Funds available for loans to students:			
Total loan funds	$ 55,377		
Less loans outstanding	32,715		
Balance available for loans		22,662	
Pensions		919,492	
Scholarships		234,535	
Faculty and departmental funds for specific operating purposes		278,811	
Other		230,058	$ 2,174,141
			$ 2,174,141

Investment Funds

Funds invested:		
Plant funds	$ 1,738,094	
Endowment and other non-expendable capital funds	12,381,788	
Trust and other expendable funds	2,174,141	
Current funds	116,290	
		16,410,313
		$16,410,313

STATEMENT OF REVENUE AND EXPENSE

for the year ended June 30, 1961

SUMMARY OF REVENUE

Students' academic fees		$ 1,807,220
Endowment income:		
General purposes	$ 633,494	
Specific purposes	22,043	655,537
Government grants:		
Federal	964,273	
Provincial	1,300,000	2,264,273
Gifts for operating purposes from:		
Corporations	21,400	
Foundations	111,367	
Individuals	1,630	
Others	69,637	204,034
Sale of services to outside organizations		162,223
Miscellaneous:		
Research and scholarship overhead recovered	48,793	
Other	24,184	72,977
		$ 5,166,264

SUMMARY OF EXPENSES

Academic (including library)	$ 3,761,109
Administration	356,554
Plant maintenance	741,352
Scholarships, bursaries, prizes	100,507
Miscellaneous	146,550
Total current expenses	5,106,072
Provision for anticipated deficits of ancillary enterprises for the 1961-62 fiscal year	25,000
	5,131,072
Unallocated net income	35,192
	$ 5,166,264

STATEMENT OF UNALLOCATED NET INCOME

for the year ended June 30, 1961

Balance, June 30, 1960	$ 35,780
Add unallocated net income for current year	35,192
Balance, June 30, 1961	$ 70,972

STATEMENT OF MAINTENANCE RESERVE

for the year ended June 30, 1961

Balance as at June 30, 1961		$ 1,637,706
Add:		
Interest allowed on average balance	$ 38,935	
Amount charged to Central Heating Plant expense for amortization of plant additions	17,527	56,462
		1,694,168
Deduct expenditures during the year		374,870
Balance, June 30, 1961		$ 1,319,298

SCHEDULE OF FUNDS INVESTED IN CAPITAL ASSETS

as at June 30, 1961

Surplus from reappraisals made in 1932 and 1952	$10,497,690
Allocated from unallocated net income (no change during the year)	2,420,767
Benefactions	16,404,358
Total	$29,322,815

STATEMENT OF GENERAL ENDOWMENT

for the year ended June 30, 1961

Balance, June 30, 1960	$ 8,105,680
Paid on pledge by Students' Memorial Union	2,231
Undesignated additions during current year	59,265
National Campaign — ⅓ of net receipts for the year ended June 30, 1961	53,550
Balance, June 30, 1961	$ 8,220,726

SUMMARY OF INVESTMENT PORTFOLIO

as at June 30, 1961

Bonds and Secured Notes:		
Short Term Securities		$ 1,012,029
Government of Canada and Canada Guaranteed		2,802,100
Provincial and Provincial Guaranteed		2,630,814
Municipal Debentures		1,324,963
Corporation Bonds — Industrial	$ 2,651,876	
— Public Utility	2,333,530	4,985,406
Stocks:		
Preferred	39,675	
Common	2,685,458	2,725,133
Leased Properties		766,474
Mortgages		3,323
Securities held for Specific Trusts		762,844
Total		$17,013,086

J. J. DEUTSCH
Vice-Principal (Administration)